

THE CONSUMPTIVE WORKING MAN

WHAT CAN SANATORIA DO FOR HIM?

NOEL DEAN BARDSWELL

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Dear Dr. H. H. H.

Many thanks for

your kind letter. received yesterday.

It will give me the greatest

pleasure to meet you here and

to talk over the subject.

That we are both working.

If you have not a copy of my

book please let me know and I

will ask my publisher to send

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for me.

When you return here

in September let me know

~~and~~ or better still invite

yourself here for a night or a

couple of nights. which is

just as more time. I am

anxious to get into which

with your American work.

With kind regards

Yours very truly

Wm. B. Sanders.

Amoldy Press

THE CONSUMPTIVE WORKING MAN.

What can Sanatoria do for Him?

BY

NOEL DEAN BARDSWELL

M.D., M.R.C.P., F.R.S. (EDIN.)

MEDICAL SUPERINTENDENT, KING EDWARD VII. SANATORIUM

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PREFACE.

No attempt is made in the writing of this book to cover all the ground that might legitimately be traversed as coming within the scope of its title—"What can the Sanatorium Treatment do for the Consumptive Working Classes?" It is hoped, however, that what has been written will be acceptable as a personal contribution to a very big subject.

To those who are workers in the same field, facts are not infrequently more valuable than theories: exact and careful records extending over a considerable space of time tell their own tale, and comparisons of such records, with the experience of others, throw a searchlight that elicits truth. In this volume the writer has set out with bare simplicity a faithful history of the work of several years. From certain data the thoughtful draw their own conclusions. My own conclusions, which I have ventured to give, express the opinions held by me at the present date. One realises that they are not final; a knowledge of the literature of the subject proves how soon the accepted deductions of to-day become the exploded theories of to-morrow. At any moment some Columbus may land us in an undiscovered country. Still, expressions of opinion of the moment are worth recording. Looking back

upon them from a higher standpoint, they show like rungs upon the ladder of our knowledge: each one of them served once as foothold, and without such aids the ladder might never have been climbed at all.

It remains for me to thank those who have helped me in my task. To Mr. J. E. Chapman, my colleague from the year 1899 to 1905, I am particularly indebted. He has been associated with me in nearly the whole of my work connected with tuberculosis, and all the patients dealt with in this book were originally under our joint care, either at Sheffield or at Mundesley. I have also obtained much information concerning the life-histories of some of these patients from various reports which Mr. Chapman and I have published together during the past six years.¹ Further, I wish to thank my secretary, Mr. H. C. Price, for the assistance he has given me in obtaining the after-histories of the patients treated at the Mundesley Cottage Sanatorium, and for his help in the preparation of the tables in this book.

NOEL BARDSWELL.

¹ "Report of Eight Months' Trial of the Sanatorium Treatment of Consumption at the Sheffield Royal Infirmary" (*Quarterly Medical Journal*, February, 1900). "The Economic Value of the Sanatorium Treatment for the Working Classes" (*Transactions of the Royal Medical and Chirurgical Society*, vol. lxxxvii.).

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INTRODUCTORY CHAPTER BY SIR WM. BROADBENT, BART., K.C.V.O.

DR. NOEL BARDSWELL'S book on the sanatorium treatment of the poor, appears at a very opportune moment. The inevitable and foreseen reaction against sanatoria in the treatment of consumption has arrived. When the early accounts of their success were published, the public, as usual, took an exaggerated view of the benefit to be expected from the open-air sanatorium treatment, and looked for recovery in every case. On the other hand, the numerous private sanatoria which sprung up to meet the demand, were compelled by the insistence of various friends to admit patients in all stages of the disease, and then in self-defence had to send hopeless cases out. These were set down as failures even when life had been prolonged and made more comfortable. A certain proportion of patients again, who on their discharge were firstly described as greatly improved, and in whom the disease was for the time being arrested, relapsed and died within a few months or years; these also have been set down as failures. Together they have been made the basis of a formidable indictment against sanatoria. Dr. Bardswell's book will correct both exaggerated expectations and unfairly adverse judgments. He gives an account of the sanatorium life and of the history of twenty-five working-class cases, with an instructive commentary on each. These patients returned to social conditions, surroundings and influences, often of a most adverse kind, in spite of which a considerable portion of them have so far recovered as to be able to earn a living for

years. Others who ultimately relapsed and died enjoyed fair health and were fit for work for a time. Seeing that all of them would have died, and many would have dragged down their families into destitution and disease, these records are of themselves a vindication of sanatoria.

It is not open to doubt that in a certain considerable proportion of cases of consumption from all strata of society, in an early stage there is a complete arrest of the disease and the patient is restored to health and to efficiency as a member of the community. In another considerable proportion of cases the recovery, while not so complete and permanent, is such as to enable the sufferer to enjoy life and to do a certain amount of work. An important question is whether the economic advantage is such as to warrant the expenditure of public money in the erection and maintenance of sanatoria for the working classes, and whether the great friendly societies would be justified on economic grounds in endeavouring to provide sanatorium treatment for their members. In my judgment, the answer is an emphatic YES. It will be necessary ultimately, in order to get the best and most permanent results, to have working colonies in which patients may gradually be prepared for their return to previous occupations, and in which those too much damaged to face unfavourable influences may find some suitable employment. This, however, is an after consideration.

But there is a philanthropic as well as an economic aspect in which open-air sanatoria should be regarded. Merely as a means of alleviating suffering and prolonging life, and of affording some degree of happiness and pleasure to the hopeless invalid, they have a valid claim on the charitable and on the public.

A third and very important service which sanatoria render is in taking sufferers out of homes in which they are a source of danger to their families and friends. In this way they are necessary as a means of prevention. Their influence in this direction indeed is incalculable. From the point of view of prevention, advanced cases must not be

entirely excluded, and on this ground as also on the ground that all stages of the disease must be studied in order that a remedy or means of alleviation may be found, those interested in sanatoria must not be afraid of spoiling statistics by admitting patients who are not likely to recover.

Yet another service which sanatoria render is by their educational influence. Patients see and feel the benefits derived from fresh air and sunshine, they can no longer endure close, ill-ventilated living-rooms, and they sleep with wide-open bedroom windows. They have been taught the danger of careless expectoration, and of dark corners and passages, and of dust. A course of treatment of a few weeks' duration, far too short for direct effect on the disease, followed up by open-air practice at home, has often proved successful as regards the patient, and has conferred protection on the family. Dr. Bardswell even thinks that it may be worth while admitting cases for a single week.

All these points, the *Economic*, the *Philanthropic*, the *Preventive* and the *Educational*, are discussed by Dr. Bardswell in an eminently practical spirit, and the whole book is the outcome of experience inspired by enthusiasm and guided by common sense.

THE CONSUMPTIVE WORKING MAN.

To what extent may the sanatorium treatment be considered a cure for consumption? What chance does it hold out to the consumptive working man of his being permanently restored to a normal working capacity, *viz.*, the capacity for competing successfully with healthy people in the everyday struggle for existence? These are crucial questions. In answering them even those who have had most experience in the treatment of consumption would, I believe, be loth to commit themselves to a very definite opinion. The value of any treatment of consumption can only be arrived at by an analysis of the records of a great number of carefully observed cases, a matter requiring a considerable amount of time and trouble. It is not so much data as to the immediate beneficial results which follow sanatorium treatment that are wanted—there is overwhelming evidence on this point—but rather records of the life-histories of consumptives subsequent to their discharge from sanatoria and their return to ordinary life. It is on such data alone that a sound opinion can be arrived at as to the curative value of the sanatorium treatment for consumption. As a contribution to this subject, I have in the following pages put on record the results of my own experience in treating the consumptive working classes. It consists of the life-histories of twenty-five working men who have been under my care from time to time during the past six years, and whose conditions of life and health since their return home up to the present time have been as fully as possible investigated. Of these twenty-five, thirteen were

treated in the wards of the Sheffield Royal Infirmary in 1899 and 1900. The remainder were treated at Mundesley—nine in the cottage sanatorium which Mr. Chapman and I managed during the winter of 1903, two in chalets in the grounds of Mundesley Sanatorium, and one in rooms in Mundesley village. With the exception of the two men treated in the chalets, none of these twenty-five patients had the advantages associated with treatment in especially constructed and equipped sanatoria. For this reason, as illustrating how much can be done for the consumptive without any such special provision, it may be of interest to give a short account of the conditions under which the treatment was carried out in Sheffield and at Mundesley.

GENERAL DESCRIPTION OF THE CONDITIONS UNDER WHICH THE PATIENTS WERE TREATED IN THE SHEFFIELD ROYAL INFIRMARY.

The Royal Infirmary, a general hospital of 250 beds, is situated in the Don valley, one of the low-lying districts of Sheffield. This hospital, which stands in grounds of some six acres, when first built, over a century ago, was surrounded by open country, and now forms a small oasis in a thickly-populated working-class district. Along both sides of the Don river, which flows along the bottom of the valley about half a mile below the infirmary, there stretches a long line of metal works, whose numberless furnaces and chimneys by day and night add their quota to the pall of smoke in which the city is continuously enveloped. An ill wind it is, that blows from this quarter towards and across the infirmary buildings, burdened with smoke and other impurities in a more concentrated form than can be brought by wind from any other point of the compass. We learn from text-books that abundance of pure air and sunshine are essential for the successful treatment of the consumptive; in Sheffield for days together one does not see the sun, and as to the purity of the air I have already said enough. Fortunately for

consumptives, ideal climatic conditions are not essential for their efficient treatment, and the work done in Sheffield under the conditions which I have but briefly sketched prove this fact conclusively.

Accommodation.—Previous to June, 1899, the few consumptives admitted into the infirmary had been treated in the general medical wards, but after it had been decided to try the open-air treatment, this plan was given up and arrangements were made for the separation of consumptives from other patients. This course was indicated on the grounds of risk of infection to other patients, and on account of the obvious impossibility of efficiently carrying out the open-air part of the treatment in a mixed hospital ward. The accommodation which was then provided for the consumptives consisted of two ordinary medical wards, which were devoted exclusively to their use. These wards are of the old-fashioned type, provided with a good number of sash-windows on each side, reaching fairly low to the ground; they face respectively east and west, are heated by open fireplaces, and have no other ventilation besides that afforded by windows and doors. There are no balconies attached to these wards, so that patients who were treated in bed had to remain in the wards, their beds being drawn up to the windows to allow of their getting as much air and sunshine as possible. Those who were sufficiently convalescent spent their day in a part of the infirmary grounds about half an acre in extent, in which one revolving shelter, large enough to accommodate four patients, was reserved for the worst of the cases who were treated out-of-doors. The rest of the patients simply lay out in the open, on deck-chairs, protected from the wind by screens and well provided with rugs and warm clothing during the winter.

Routine, Administration, Etc.—The general principles of the sanatorium treatment are so well known that it is unnecessary to say much about the routine adopted. The main essentials of the treatment were thoroughly carried out, *viz.*, a maximum amount of open air, an adequate diet and regulated



THE ROYAL INFIRMARY, SHEFFIELD.

[Facing p. 6.]

rest and exercise. In addition, the routine included daily bathing, massage for the cases treated in bed and the administration of drugs when indicated. The patients spent their whole day, from 7 A.M. until dusk, in the grounds, except in bad weather, when they remained all day in the wards, the windows of which, one need scarcely say, were always kept open. The supervision of the patients, especially those in the grounds, was of course not so constant as in the present-day sanatorium, but with a staff of a sister and two nurses, little difficulty was experienced in seeing that the patients for the most part carried out their daily instructions.

Meals.—The patients had three chief meals a day, viz., breakfast at 6.30, consisting of porridge, bacon and eggs or fish, and bread and butter, with half a pint of milk; dinner at 12.30 of meat and two vegetables, milk pudding and fruit, with half a pint of milk or beer; and supper at 7 P.M. much the same as breakfast, with half a pint of milk. In addition, they had half a pint of milk at 10.30 A.M. and tea at 4.30 of bread and butter and jam, with an egg and half a pint of milk with tea. Half a pint of milk was also allowed to each patient during the night. During the summer the patients who were in the grounds all day had their meals, with the exception of supper, brought out to them; in the winter all meals were in the wards.

Rest and Exercise.—The regulation of the amount of rest and exercise taken by patients, a part of the treatment to which a good deal of attention is paid in sanatoria, is a difficult matter to carry out when treating consumption in general hospitals. At Brompton Hospital for Consumption I noticed the same difficulty in this respect. The patients at Sheffield used to take exercise on an asphalt walk which surrounds the grass plot in front of the main building. This walk had been measured so that definite amounts of exercise could be prescribed to individual cases, and by regulating their rounds by the infirmary clock, which faces this green, the patients soon learned to walk the correct pace. Walking was not allowed within an hour of a meal, and the patients had to

return to their couches on completion of a spell of exercise, no loitering or standing about being permitted.

Admissions.—The admissions to the sanatorium wards were unselected, with the result that a number of absolutely hopeless cases were taken in. This fact of course detracts from the value of the statistics of this work, as an indication of the curability of consumption by sanatoria.

GENERAL DESCRIPTION OF THE MUNDESLEY COTTAGE SANATORIUM.

The cottage sanatorium was simply an ordinary house, and no attempt was made to convert it into a regular sanatorium by structural alterations, etc. This house (rental, £50 a year), situated on the cliff about a mile from Mundesley Sanatorium, consists of two fair-sized, semi-detached villas, with a south-west aspect. It stands in a fairly isolated position on the open ground of the cliff, its outlooks being farm land in front and the sea at the back. We did not rent the house ourselves, but made arrangements with the occupier for the reception therein of consumptive patients at a fixed charge of 8s. a week a head in return for lodging and attendance. The boarding of the patients we kept entirely in our own hands.

Accommodation.—There were eight rooms reserved for the use of the patients; they mostly faced south-west and were well provided with windows. Two rooms on the ground floor were used as dining-room and sitting-room; they were furnished simply with tables and chairs, and the floors laid with linoleum. The rest of the rooms, furnished equally plainly, were used as bedrooms and accommodated ten patients, two men sleeping in each of the four larger rooms and one in each of the two smaller ones. Throughout the parts of the house used by the patients, all unnecessary furniture, hangings, etc., were removed and carpets replaced by linoleum, or carpet strips laid loosely on the bare flooring; the rooms could thus be very easily cleaned. There was no garden attached to the house, which had nothing but a small

front yard, neither was there any outside accommodation provided in the way of shelters.

Staff.—The house and general comfort of the patients were attended to by the landlady, with the assistance of the cook and one maid. There was no resident medical officer.

Routine Treatment.—The following scheme of the general routine, a copy of which was given to each patient, shows the general lines of treatment adopted. This routine was, of course, modified from time to time for individual patients.

General Routine (Copy of Printed Instructions).

- 7.30 Temperatures taken and patients rise.
- 8.30 Breakfast. (After every meal patients rest for an hour in the open air).
- 10.30 Walking exercise as directed.
- 12.30 Patients rest on their chairs till 1.30 when the temperature is taken.
- 1.30 Dinner. An hour's rest.
- 3.0 Walking as directed.
- 5.0 Tea.
- 7.0 Rest on chairs for an hour. Temperature taken at 8.
- 8.0 Supper. Recreation till bedtime.
- 10.0 Bedtime.

Patients are advised to spend as much time out of doors as possible ; at the same time they should be sheltered from wind.

The sitting-room must only be used in the evenings, or when there is much wind or rain.

Spitting.—Patients are informed that consumption is spread by the matter coughed up by the lungs. Under all circumstances therefore they must spit into the flask provided for the purpose. Neglect of this regulation will be followed by summary dismissal.

No patient is allowed to take alcohol in any form during his stay at the cottage, under penalty of dismissal.

The diet is an essential part of the treatment and must be taken in its entirety.

No clinical charts were used, but each patient took his temperature three times a day and entered these records into a notebook. In fine weather the patients, when not walking, sat in deck-chairs on the cliff and in bad weather they stayed in the sitting-rooms or in their own bedrooms. This arrangement worked quite well in the absence of open-air shelters, etc. The routine allowed of considerable exercise being taken, the patients on the average walking some eight to fourteen miles a day.

Disposal of Sputum.—Every patient was provided with a Dietweller flask which he emptied and washed himself, a supply of carbolic acid solution being kept at the cottage for the purpose. At no time was there any trouble as to careless disposal of sputum.

General Supervision and Administration.—The close supervision, such as is given to patients in a sanatorium with a resident medical staff, was obviously impossible and to a considerable extent we had to rely upon the trustworthiness of the patients themselves. On the whole they behaved quite well. New patients were only admitted on Saturdays; on the following Sunday they came up to the sanatorium to be examined and to receive instructions as to the daily routine they were to follow. Subsequently they went up, with the rest of the patients at the cottage, to the Mundesley Sanatorium every Friday morning, taking with them their notebooks containing the records of their temperatures and of their daily walks for the past week. The patients were then weighed and given instructions for the following week. Any patients wishing for daily advice could come up for consultation at the Mundesley Sanatorium any morning at eleven o'clock, and throughout the time the cottage was open, one or more of the patients were told off to come up to the sanatorium every morning with a report as to the welfare of the patients at the cottage. By this method a sufficiently close touch was kept with them and we always had early information as to anything requiring a personal visit. As far as we were able to determine from the reports of the landlady and from our

own surprise visits to the cottage, the prescribed routine was in the main properly carried out. In the evenings the men spent most of their time in the sitting-rooms playing dominoes, draughts, etc., when they might perhaps have been better out of doors; still the rooms were airy enough. At times, too, there was a tendency for the windows to be somewhat more closed than one wished. The cottage sanatorium was run during the winter and early spring so that this was not altogether to be wondered at.

Meals.—The supervision of patients' meals is generally spoken of as one of the essentials for the successful treatment of consumption. The real essential, however, is that every patient should take an adequate diet, and as a matter of fact so long as one can be sure of each one doing so, the actual supervision of meals becomes a matter of small importance. When one is dealing with patients with early disease, with normal appetites, and with unimpaired digestions, as was the case in most of the patients treated at the cottage sanatorium, there is not the least trouble in this respect. The difficulty as to food at the cottage lay rather in the opposite direction, for the change from town to the bracing air of the east coast made the men's appetites so keen that they ate more than we had anticipated. The actual nutritive value of the daily diet of their own election was, proteid, 196·5 grammes, fat, 126·4 grammes, and carbo-hydrate, 522·4 grammes, with a caloric value of 4,040. The size of this diet is well shown by comparing it with the figures of a diet calculated by Atwater to be adequate for a blacksmith doing severe muscular work, *viz.*, proteid, 176 grammes, fat, 71 grammes, and carbo-hydrate, 666 grammes, with a caloric value of 4,117. The amount of food taken at the cottage would, indeed, suggest that the patients were purposely stuffed. The fact that the food given, though simple, was of a more appetising character than that taken by most of the men when at home, probably accounts to some extent for their eating so much. The following was the weekly menu:—

Sanatorium Cottage Dietary.

DAY.	BREAKFAST.	DINNER.	SUPPER.
SUNDAY . .	Porridge . . Fresh Fish . . An Egg . .	Roast Mutton . . . Gingerbread Pudding	Cold Mutton Rice Pudding
MONDAY . .	Porridge . . Bacon and Egg	Roast Beef Suet Pudding . . .	Cold Beef Sago Pudding
TUESDAY . .	Porridge . . Bloater Egg	Fresh Fish Potato Pie or Mince . Marmalade Pudding .	Cold Beef Tapioca Pudding
WEDNESDAY	Porridge . . Bacon and Egg	Boiled Mutton . . . (Onions, Carrots, etc.) Date Pudding . . .	Cold Mutton Ground Rice Pudding
THURSDAY .	Porridge . . Kipper Egg	Roast Beef Treacle Pudding . .	Cold Beef Rice Pudding
FRIDAY . .	Porridge . . Bacon and Egg	Fresh Fish Hash, Mince, etc. . . Fig Pudding	Cold Beef Sago Pudding
SATURDAY .	Porridge . . Herring Egg	Roast Pork Lemon Pudding . .	Tripe and Onions Tapioca Pudding

Daily tea, consisting of tea, bread and butter, jam, or cress, etc.

An allowance is also made per patient of four pints of skim milk, 16 oz. bread, 2½ oz. margarine, 2 oz. jam. Parts of these food stuffs are used in the making of the puddings.

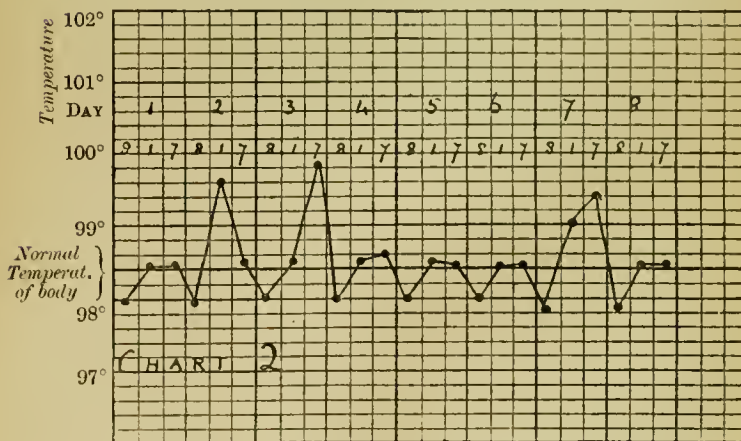
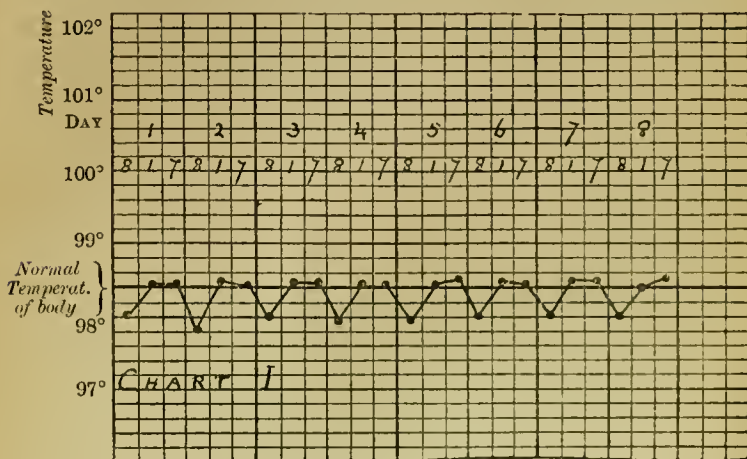
Regulation of Exercise.—It is perhaps worth mentioning, with regard to the question of the supervision of patients in a cottage sanatorium run on similar lines to those at Mundesley, *i.e.*, with only a visiting medical staff, that a great deal of information can be obtained from the records of the patients' temperatures (rectal) when taken three times a day, *viz.*, on waking, at midday and in the evening, the last two temperatures being taken after one hour's complete rest. The body temperature is very soon raised by exercise and slowly falls again during rest, so that if a patient rests throughout the hour before taking his temperature on one day, and walks



MUNDESLEY COTTAGE SANATORIUM (1903).

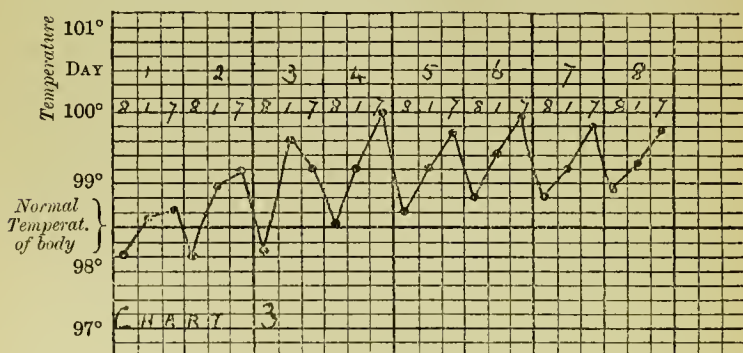
[Facing p. 12.]

about during this hour on the next day, his irregularity of habit is shown on the temperature chart. The following examples show this point :—



The first temperature record is characteristic of the apyrexial consumptive, whose temperatures are always taken after resting; his daily curve of temperature is constantly normal and scarcely varies a point day by day. The patient

whose chart is shown was walking twelve miles a day. The next record shows a weekly temperature curve with several irregularities. On the first, fourth and fifth days the curve is typically normal, but on the second, third and seventh days there are distinctly higher temperatures than usual, either at one o'clock or eight o'clock. These elevations of temperature might be due either to the rest hour being shortened, there thus not being time for the temperature raised by exercise to fall to normal, or to the exercise taken having been excessive, the resulting high temperature not having fallen during the hour's rest. In the case of the patient whose chart is given, one noted that the temperature on waking was con-



stantly normal: knowing moreover that this patient had been hitherto free from fever, one concluded pretty confidently that he was not regularly taking his prescribed hour's rest, and it was so. It does not take a Sherlock Holmes thus to draw inferences from temperature charts; but the moral effect of being able to do so is often very beneficial. There is one more point to be noted. When a patient is resting properly before taking his temperature, and the chart is irregular, it is due to his taking too much exercise, and when this is persisted in for several days, the rise in the afternoon and evening temperatures is followed by a rise of the temperature on waking on the following day. Chart 3 is an example of this. In such case the indications are clearly to reduce the exercise taken, either by shortening the walk or making the patient

walk more slowly. These are general rules which, with a little experience, will be found very useful for the regulation of exercise taken by consumptives. There are, of course, exceptions, but the subject of the reaction of the body temperature to exercise is too long a one to discuss further.

Selection of Cases.—The patients admitted to the cottage sanatorium were carefully selected, since the general routine and the diet had been framed for the treatment of early cases only. To help us in deciding who should be admitted the following certificate form was sent to every applicant, and the information thus obtained on the whole proved satisfactory for the purpose.

Sanatorium Cottage, Mundesley.

Patients are admitted to the cottage if the replies to the following questions seem to show that the case is suitable for treatment:—

Name,..... Age,.....
 Addresss,
 Married or Single,.....Occupation,.....
 Particulars of the Weekly Income of the Household,.....

Address of the Cottage:

DEVONSHIRE HOUSE,
 MUNDESLEY.

MEDICAL CERTIFICATE.

Is the disease Early or Advanced?

Have Tubercle Bacilli been found in the Sputum?

What is the present condition of the Lungs?

Left Upper Lobe,.....

Left Lower Lobe,.....

Right Upper Lobe,.....

Right Lower Lobe,.....

Is the Alimentary Canal in good condition?

Is any other disease present?

Signature of Medical Practitioner,

.....

N.B.—No patient is taken for a less period than eight weeks. During his stay he must abstain entirely from alcohol. Weekly fee, 17s., payable in advance, includes everything except personal laundry. Patients are admitted on Saturdays only.

Some patients with advanced disease were admitted, either through errors of diagnosis or from our willingness to give patients with rather a bad record the benefit of the doubt. I might add that these patients did not do at all well at the cottage, there being of course no arrangements for nursing, etc., and they proved at times a considerable source of anxiety.

Cost of Running the Cottage Sanatorium.—The patients were charged 17s. per week at the cottage, and this fee included everything except personal laundry. The provision of cheap treatment for the consumptive poor is a matter of such importance that I think it as well to say something as to the financial success of this attempt to treat patients for an inclusive fee of 17s. a week. The clinical success of this work is sufficiently shown by the records of the patients in this book who were treated there. I have previously stated that there was no capital outlay spent upon the cottage sanatorium, but that arrangements were made with the landlady of the house for patients to receive lodging and attendance there for an inclusive fee of 8s. a week. This left 9s. over for supplying the patients with food, sputum flasks, clinical thermometers, and coals for the sitting-room fires. The following balance-sheet, prepared by Mr. Chapman, gives a fair statement of the receipts and expenditure at the cottage sanatorium during three months:—

RECEIPTS.			EXPENDITURE.		
	£	s. d.		£	s. d.
29th Jan. to 1st May.					
To Fees (9·08 men at 17s.)	101	7 10	By Board and lodging .	105	17 2
			„ Coal	0	13 6
			„ Flasks and thermo-		
			meters	1	7 0
			„ Bank charges . . .	1	0 0
			„ Printing, stationery		
„ Balance	7	16 10	and stamps . . .	0	7 0
	£109	4 8		£109	4 8

From these figures it may be seen that there was a loss

during the three months of 1s. 4d. per week per head, or, in other words, that the total cost of treating each patient was only 18s. 4d. per week.

METHODS ADOPTED TO OBTAIN INFORMATION AS TO THE
AFTER-HISTORIES OF THE PATIENTS TREATED AT
SHEFFIELD AND MUNDESLEY.

Particulars as to the lives of the patients after discharge have been obtained, as far as possible, first-hand from the men themselves, for one can learn a great deal more from a visit to a patient in his own home than from any amount of correspondence. When personal visiting has been impossible, information has been chiefly obtained by sending a series of simple questions for answer. An example of such questions and answers will be found in the report of Case No. 3 (second series). Almost from the first, one realised that the social and economic conditions of the various patients after their return home had an enormous influence upon their subsequent life-histories, and as much information as possible has been obtained on these heads. The following up of these cases has indeed resolved itself into an inquiry into the various conditions, clinical, social and economic, which determine the life of the consumptive working man. The amount of detailed information I have been able to obtain with regard to the lives of each of my twenty-five patients varies considerably, and the attempt to study the factors which have determined their after-histories has been more successful in some cases than in others. I have thought it best, then, to consider firstly those patients, ten in number, concerning whom I have obtained information on every particular that I wished, and whose life-histories have been most fully worked out, and then to discuss the remaining fifteen patients whose records are not quite so complete.

DETAILED DESCRIPTION OF THE LIFE-HISTORIES OF THE
TEN CONSUMPTIVE WORKING MEN, ABOUT WHOM
FULL INFORMATION HAS BEEN OBTAINED.

CASE I.¹—Age 30.

Occupation.—Officer in the Salvation Army.

Type of Disease.—Early (infiltration) disease of one lobe.

Duration of Disease.—Probably three months.

Number of Weeks under Treatment.—Twelve.

CONDITION ON ADMISSION.

Fever.—Nil.

Digestion.—Normal.

General Health.—Very fair.

Weight.—11 stones 5 lb.

Relation of Weight to Highest

Known Weight before Illness.

— 7 lb.

CONDITION ON DISCHARGE.

Nil.

Normal.

{Excellent. Walking ten
miles a day.

11 stones 12 lb.

Equal to.

*Social and Economic Conditions at Date of Contraction of
Tuberculosis.*

Family.—Patient was a widower with one child.

Work.—This man was an officer in charge of a corps, which means that he was responsible for a branch of Salvation Army activity, work in which he was assisted by junior members of the same denomination. This patient was stationed in a small country town, and the following was his routine: Rises at 6.30 to 7; breakfast about 8; correspondence, etc., 8.30 to 10; reading and study, 10 to 12; dinner at 12; visitations, from 2 to 4.30; tea, 4.30 to 5. After 5 he prepares for his meeting which takes place at 6. At 7.15 open-air service on four nights a week, followed by an indoor service which lasts from 8 to 9.30. The work appears to be distinctly hard and involves a good deal of responsibility. Visiting of the poor, of which a good deal is done by the Salvation Army

¹ This patient was treated at the Mundesley Cottage Sanatorium.

officers, necessitates a good many hours being spent in very bad hygienic conditions ; very probably this patient became infected with tuberculosis in this way.

Home Conditions.—The patient and his family lived rent-free in a six-roomed house, furnished and provided by the Salvation Army. His home conditions were quite satisfactory.

Wages.—Officially this man had 28s. a week, with free lodgings and an allowance of 1s. a week for his child. It is in practice, however, a difficult matter to estimate with accuracy the income of Salvation Army officers in charge of a corps. To give an idea of what this man's financial possibilities were, it is best to describe briefly the lines upon which he had to run his command. In the first place, no salaries are guaranteed ; men join the Salvation Army on this understanding. An officer in charge of a corps has to make himself responsible for all current expenses connected with its work, *e.g.*, rent, taxes, upkeep of the headquarters, etc. The income to meet these charges is obtained by the officers from collections at meetings and money given by local sympathisers with the cause. From the weekly income which remains after defrayment of this first charge, *viz.*, the current running expenses, the officer is entitled to keep 28s. a week as his own salary, and whatever remains after this has been paid is handed over to the general funds of the army. In addition to this salary, the officer in charge is allowed to take gifts in kind from the members of the congregation, *e.g.*, coal, food, etc., and in many instances this is a material asset in his finances. A further source of income, possibly 1s. to 2s. a week, is that derived from the sale of literature and uniforms to members of the corps. From this it will be seen that the officer depends for his wage upon his own capacity to do profitable work, and, as one would expect, the income made by different men in different places varies very greatly. In the majority of cases it appears that officers have no difficulty in collecting sufficient money to provide themselves with their official salary after payment of the current expenses. In districts which are unfriendly to the Salvation Army the income

may be insufficient to provide the officer in charge with his salary; in this case he can have the deficit rectified on application to headquarters. In practice, however, officers who have failed to make both ends meet but rarely apply for financial assistance, preferring to get along as best they can. This is really unnecessary self-denial. At the same time one understands from Salvationists that for an officer to apply for financial help is to some extent a confession of failure and not calculated to help him up the ladder of promotion. From this cause some officers in the Salvation Army have a weekly income which, in my opinion, is scarcely adequate to keep them physically efficient. The officer whose case I am now considering was a popular man, who had no difficulty in obtaining his salary.

The following is an approximate statement of his income and expenditure at this date:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Salary . . .	1	10 0	By Rent (nil) . . .	0	0 0
			„ Household expenses . . .	0	5 0
			„ Clothes . . .	0	5 0
			„ Balance for food . . .	1	0 0
	<u>£1</u>	<u>10 0</u>		<u>£1</u>	<u>10 0</u>
Number in family in terms of men					2·1
Approximate weekly sum available for food per man					10s. 6d.

Financial Condition of the Patient and his Family during his Illness.

During his stay in the sanatorium his expenses there were paid for entirely by the Salvation Army, who, in addition, took charge of his child.

Condition on Discharge from the Cottage Sanatorium in May, 1903.

Lung Disease.—Arrest apparently complete, physical signs limited to impaired resonance, no adventitious sounds audible.

General Health.—Completely restored, walking ten miles a day.

Normal Working Capacity.—Completely restored.

After-History.

May, 1903.—After his discharge the Salvation Army thought it wiser not to send him back to his former duties and found him work as an agent for the Salvation Army Assurance Society. He first went to Newton Abbot and from thence to Teignmouth.

January, 1904.—This patient was in good health and doing a full day's work.

January, 1905.—The patient was still in good health and at the same work.

May, 1905.—He is still in the best of health.¹

Social and Economic Conditions after Discharge.

Family.—His family is the same as before admission, *viz.*, himself, his child and one servant.

Work.—Consists of the ordinary routine work of an insurance agent, *viz.*, walking from house to house collecting premiums, canvassing for policy holders, etc. His working hours average from eight to ten hours a day.

Home Conditions.—Satisfactory.

Wages.—23s. 6d. a week without lodging.

CASE II.²—Age 35.

Occupation.—Carman.

Type of Disease.—Early (infiltration) disease of the apex of the right lung.

Duration of Disease.—Three months.

Number of Weeks under Treatment.—Eleven.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—99·4 A.M. to 100 P.M.

Nil.

Digestion.—Good.

Good.

General Health.—Poor.

{ Excellent. Walking ten
 { miles a day.

Weight.—10 stones 9 lb.

12 stones 1 lb.

Relation to Highest Known Weight

before Illness.— - 13 lb. + 7 lb.

¹ February, 1906.—This patient is in excellent health, and at full work.

² This patient was one of those treated at the Mundesley Sanatorium on an entirely meat-free diet.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—This patient was unmarried and lived with his mother whom he helped to support.

Work.—He was a carman to a firm of brewers. This work was of rather a heavy character though for the most part out of doors.

Home Conditions.—They lived in lodgings and were in very fairly comfortable circumstances.

Wages.—He earned 27s. a week.

The following is an approximate statement of his income and expenditure at this date:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages . . .	1	7 0	By Rent . . .	0	9 0
„ Lodger . . .	0	4 0	„ House Expenses . . .	0	5 0
„ Mother's Work . . .	0	2 0	„ Food . . .	0	14 0
			„ Balance . . .	0	5 0
	<u>£1</u>	<u>13 0</u>		<u>£1</u>	<u>13 0</u>

N.B.—This patient and his mother were able to live within their income and to save a little every week. The patient himself was a particularly steady and intelligent man who had only recently left the 18th Hussars.

Number in family in terms of men 1·8.

Approximate weekly sum available for food per man . . . 7s. 6d.

Financial Condition of the Patient and his Mother during his Illness.

During the early part of his illness they lived on their savings; subsequently the patient went into hospital and his mother was maintained by a sister. The patient did not belong to a benefit club.

Condition on Discharge from the Sanatorium in March, 1904.

Lung Disease.—Arrest apparently complete, no adventitious sounds audible.

General Health.—Excellent, walking ten to twelve miles a day.

Normal Working Capacity.—Completely restored.

After-History.

March, 1904.—On leaving Mundesley this patient returned to London to look for work. To keep him for the period for which he would be unemployed he had £10 which had been collected for him: £5 was given by the officers of his old regiment and the other £5 was collected at the Mundesley Sanatorium. This sum was given to the Charity Organisation Society in trust for the patient, with power to use it as they thought best. The patient, however, through the medium of the Charity Organisation Society, obtained a situation as coachman in the country within a week after leaving Mundesley, and has remained there ever since.

November, 1904.—When visited in November, 1904, he was in splendid health and had not missed a day's work since recommencing in March. He mentioned casually as illustrative of his good health that he could carry 1½ cwt. with ease.

Social and Economic Conditions in November, 1904.

Work.—As a coachman to a retired army officer in the country, his work is thoroughly satisfactory in every respect. The following is his routine: Up at 6·30; sees to horses, stables, etc. Breakfast at 8. In the morning he is generally out driving. Dinner, 1 to 2. Afternoon: driving the carriage again or doing odd jobs about the place. Tea at 5, and work again till 7. He usually has a walk in the evening and goes to bed at 10. He spends some twelve hours a day in the open air and is seldom indoors.

Home Conditions.—Very satisfactory. He lives over the stables in comfortable quarters, and always keeps his windows open. He has his meals with the gardener and his wife.

Wages.—He earns 18s. a week and shortly expects to rise to 20s. In addition he lives rent free.

The following is an approximate statement of his income and expenditure at the present time:—

INCOME.		EXPENDITURE.	
	£ s. d.		£ s. d.
To Wages . . .	0 18 0	By Food . . .	0 11 0
		„ Clothes . . .	0 1 6
		„ Tobacco, etc. . .	0 2 0
		„ Beer . . .	0 2 0
		„ Sends his mother . .	0 1 6
	<u>£0 18 0</u>		<u>£0 18 0</u>

The following is the patient's weekly dietary. The patient pointed out in reference to it that he was fortunate in getting many extras, such as mushrooms, blackberries, etc., practically free of cost. If he had not been living in the country, he certainly would not have included them in his diet. He also said that he was now much more careful about his meals than he had ever been before his illness. He takes no milk, but drinks beer with his meals.

Diet.

DAY.	BREAKFAST.	DINNER.	TEA.	SUPPER.
SUNDAY . .	Bacon, Egg, Tea, Bread and Butter.	Roast Pork, Potatoes, Sprouts, Blackberry Tart.	Bread, Butter, Tea, Cucumber, Cake.	Bread, Cheese, Mushrooms, Cocoa.
MONDAY . .	Two Eggs, Bread, Butter, Tea.	Cold Pork, Bread, Blackberry Tart.	Bread, Butter, Cake, Jam.	Bread, Cheese, Cocoa.
TUESDAY . .	Bacon, Bread, Butter, Tea.	Mutton Chop, Marrow and Potatoes, Tapioca.	Bread, Butter, Jam, Cake, Tea.	Bread, Cheese, Cocoa.
WEDNESDAY	Bloater, Bread, Butter, Tea.	Liver and Bacon, Marrow, Potatoes.	Bread, Butter, Jam, Cake, Tea.	Bread, Cheese, Cocoa.
THURSDAY .	Bacon, Bread, Butter, Tea.	Steak, Sprouts, Potatoes, Apple Pudding.	Bread, Butter, Jam, Cake.	Bread, Cheese, Cocoa.
FRIDAY . .	Haddock, Bread, Butter, Tea.	Sheep's Heart, Potatoes, Marrow, Apple Pudding.	Bread, Butter, Jam, Cake and Tea.	Bread, Cheese, Cocoa.
SATURDAY .	Eggs, Bacon, Bread, Butter, Tea.	Steak Pudding, Marrow, Potatoes, Tapioca.	Bread, Butter, Jam, Tea, Cake.	Tinned Salmon, Bread, Butter, Cocoa.

May, 1905.—This patient is still in the same situation. His health is as good as it has ever been in his life, and he has not had the slightest drawback since leaving Mundesley in 1904.¹

CASE III.²—Age 36.

Occupation.—Wood sawyer.

Type of Disease.—Early (infiltration) disease of upper and lower lobes of the right lung.

Duration of Disease.—Four months.

Number of Weeks under Treatment.—Fourteen.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—Nil.

Nil.

Digestion.—Poor.

Excellent.

General Health.—Fair.

{Excellent. Walking ten
miles a day.

Weight.—10 stones 6 lb.

11 stones 9 lb.

Relation of Weight to Highest

Known Weight before Ill-

ness.— — 14 lb.

+ 3 lb.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—His family consisted of himself, wife and two young children.

Work.—As a wood sawyer he worked in a close shop along with some sixteen other men. The shop is badly ventilated and very stuffy, moreover the air is constantly full of dust.

Home Conditions.—The patient and his family lived in a small house in Walworth. They only had three rooms. The patient himself is a steady intelligent man, and his wife is a sensible and capable person.

Wages.—He earned 32s. a week.

The following is an approximate statement of his income and expenditure at this date:—

¹ February, 1906.—He is in excellent health, and at the same work.

² This patient was treated at the Mundesley Cottage Sanatorium.

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages	1	12 0	Rent per week	0	6 6
			Clothes, fuel, etc.	0	5 0
			Sick Club	0	0 6
			Food	1	0 0
	<hr/>			<hr/>	
	£1	12 0		£1	12 0
	<hr/>			<hr/>	
Number in family in terms of men				3·3	
Approximate weekly sum available for food per man				5s. to 6s.	

Financial Condition of the Patient and his Family during his Illness.

The sole personal resources of this patient in case of illness consisted of 10s. a week from his sick club, a hopelessly inadequate sum for the requirements of his family. The Charity Organisation Society, however, allowed him 23s. a week throughout his three months' stay in the cottage sanatorium. This help enabled him to pay for his treatment (17s. a week) and at the same time to maintain his family.

The weekly budget of income and expenditure during this period worked out as follows:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To club money . . .	0	10 0	By fee at cottage san. . .	0	17 0
„ the C.O.S. . . .	1	3 0	„ Rent	0	6 6
			„ Household expenses . .	0	1 6
			„ Food	0	8 0
	<hr/> £1 13 0 <hr/>			<hr/> £1 13 0 <hr/>	

Number of family (at home) in terms of men 2·3
 Weekly sum available for food per man 3s. 2d.

The Charity Organisation Society allowed this man a guinea a week while he was looking for work after his discharge from the sanatorium, and also allowed him a further sum of 10s. a week when his money from the sick club ceased, *viz.*, after twelve weeks' payments.

*Condition on Discharge from the Cottage Sanatorium in
May, 1903.*

Lung Disease.—Completely arrested, physical signs being limited to impaired resonance over the affected area, and no adventitious sounds being audible.

General Health.—Thoroughly restored.

Normal Working Capacity.—Completely restored.

After-History.

May, 1903.—On his discharge he returned to his home in Walworth. He did no work, but kept out of doors as much as possible.

August, 1903.—During August he was at the Gladstone Convalescent Home at Mitcham, where he continued in excellent health.

September, 1903.—In September, thanks to the efforts made on his behalf by the Charity Organisation Society, he had an opportunity of emigrating to Canada, but the emigration authorities, after everything had been arranged, refused to pass him. Having failed in their attempt to get him work abroad, the Charity Organisation Society tried to find him some sort of open-air employment by advertising. This met with no success. In the middle of September the patient, tired of waiting for work and being anxious to earn once more money for himself, returned to his original occupation in the sawmill.

April, 1904.—In April, 1904, he sent us the following replies to a series of questions: "I started work in the middle of September, and I work eight hours a day. I am back at my old job again at the sawmills. I kept my windows all open until lately, but find that the wife and baby cannot stand it, so I cannot keep so strict as I should like. I kept in fine health for some time, and then got very bad with my chest. My firm got me a letter for St. Thomas's Hospital. I saw Dr. Perkins and told him the history of my case. He examined me and said that, wherever I had been, they had made an excellent cure of me, and he was pleased to tell me that nothing of my old disease had returned. He signed my paper acute bronchitis. I earn on the average 29s. a week.

My appetite is not so good as it was at Mundesley, and I wish you could send a little Norfolk air up here."

November, 1904.—In November, 1904, this patient was visited in his own home. He was found to be looking in good health. He was working eight hours a day in the saw-mills, and had been doing so almost constantly for the past twelve months. Except for recurrent attacks of bronchitis, apparently brought on by his work, since he never suffered from it while at Mundesley, he said that he enjoyed good health and was able to do his full day's work without being knocked up. Since his return home from Mundesley he had always kept the front door of his house open, but he was not able to keep his windows open very much on account of the tendency of his wife and baby to catch cold. The baby was born while the patient was at Mundesley, thus making his family three in number in addition to his wife. The patient said he had learned a good deal at Mundesley as to how to live, and was much more careful in his habits, especially in regard to his food, than he had been formerly. His wages since his return to work have been 30s. per week, or 2s a week less than before his illness. This was due to his having returned to a somewhat easier but less remunerative branch of the sawmill work.

At the present time the weekly expenditure upon food is approximately as follows :—

	S.	D.
1 lb. Meat daily	5	10
$\frac{1}{2}$ qrtn. Loaf daily	1	5 $\frac{1}{2}$
1 qrt. Milk daily	2	4
2 lb. Potatoes per day	1	2
2 lb. Other vegetables daily	1	2
2 $\frac{1}{4}$ lb. Butter	2	4
3 lb. Jam per week	0	9
Cocoa for the week	2	2 $\frac{1}{2}$
Fish for the week	0	6
Tea for the week	0	2 $\frac{1}{2}$
Bacon for the week (1 lb.)	0	9
	<hr/>	<hr/>
	18	8 $\frac{1}{2}$

The large amount spent upon cocoa is due to the patient taking this instead of milk, as he found it agreed with him better.

The following is an approximate statement of his weekly income and expenditure at the present time :—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages	1	10 0	By Rent	0	6 6
			„ Clothes, fuel, etc. . .	0	4 0
			„ Slate Club	0	0 6
			„ For food, etc. . . .	0	19 0
	£1	10 0		£1	10 0

Number in family in terms of men 3·6

Approximate weekly sum available for food per man . . . 5s. 4d.

Sample Week's Dietary taken by Patient since his Return from the Cottage Sanatorium.

DAY.	BREAKFAST.	DINNER.	TEA.	SUPPER.
SUNDAY . .	Bloater, Bread and Butter, Cocoa.	Steak and Kidney Pudding, Custard and Baked Apple.	Cocoa.	Cocoa.
MONDAY . .	Bacon and Tomato, Bread and Butter, Cocoa.	Steak, Beans and Potatoes.	Bloater, Bread and Butter, Cocoa.	Cocoa.
TUESDAY . .	Bacon and Tomato, Bread and Butter, Cocoa.	Chop, Beans and Potatoes.	Bread and Butter, Jam and Cocoa.	Cocoa.
WEDNESDAY	Bacon and Tomato, Bread and Butter, Cocoa.	Stewed Steak with Vegetables, Potatoes, Rice Pudding.	Bread and Butter, Jam and Cocoa.	Cocoa.
THURSDAY . .	Bacon and Tomato, Bread and Butter, Cocoa.	Steak Pudding, Potatoes and Cauliflower.	Herring, Bread and Butter, Cocoa.	Cocoa.
FRIDAY . .	Bacon and Tomato, Bread and Butter, Cocoa.	Steak, Cauliflower, Potatoes.	Cocoa, Bread and Butter.	Cocoa.
SATURDAY . .	Sausages and Tomato, Bread and Butter, Cocoa.	Cauliflower, Potatoes and Steak.	Cocoa, Bread and Butter, Jam.	Cocoa.

This diet is taken by the patient himself; the other members of his family are not always able to afford such good food-stuffs.

May, 1905.—In May, 1905, he wrote as follows: "I am pleased to be able to tell you I am keeping very well indeed in health, and feel certain it is principally through being away from our smoky town all day. I also drink more milk than I used to, but still keep well on with the cocoa as well. . . . I am getting up at five o'clock in the morning and not reaching home until past eight o'clock at night." He was at this date doing some work at Mitcham—a temporary job.¹

CASE IV.²—Age 28.

Occupation.—Cook in coffee shop off the Strand.

Type of Disease.—Early (infiltration) disease of one lobe.

Duration of Disease.—Three months.

Number of Weeks under Treatment.—Thirteen.

CONDITION ON ADMISSION.	CONDITION ON DISCHARGE.
<i>Fever.</i> —Nil.	Nil.
<i>Digestion.</i> —Good.	Good.
<i>General Health.</i> —Good.	{ Excellent. Walking ten to twelve miles daily.
<i>Weight.</i> —11 stones 10 lb.	12 stones 1 lb.
<i>Relation of Weight to Highest Known Weight before Illness.</i> —	
Equal to.	+ 5 lb.

*Social and Economic Conditions at Date of Contraction of
Tuberculosis.*

Family.—Unmarried, no one dependent upon him.

Work.—His work was that of cook and carver in a coffee shop in a side street off the Strand, where he had been for the past eight years. His working hours were from 6 A.M. to 8 P.M., but he was off duty from 3 to 4 in the afternoon. The kitchen in which he worked is about 12 ft. × 13 ft. in

¹ February, 1906.—This patient is in good health and at work.

² This patient was one of those treated at the Mundesley Cottage Sanatorium.

size, situated behind the shop. The windows of the kitchen are very small and the room itself is always very hot, containing a gas stove in addition to the cooking range.

Home Conditions.—He slept over the shop in a room measuring some 12 ft. by 16 ft. The room had a good-sized window which he always kept closed. He shared this room with a boy aged seven, and on three nights of the week another man also slept in it. He got his meals regularly and had plenty of food.

Wages.—He earned 20s. per week with board and lodging all found.

The following is an approximate statement of his income and expenditure at this date :—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages . . .	1	0 0	By Subscription to Odd-fellows' Club . . .	0	1 6
			„ Food and rent (nil)	0	0 0
			„ Balance . . .	0	18 6
	<u>£1</u>	<u>0 0</u>		<u>£1</u>	<u>0 0</u>

The balance is 18s. 6d. This man was unable to state his expenses, but his chief expenditure was upon linen aprons, etc. His total expenditure, however, was considerably less than his income. His subscription of 1s. 6d. per week to the Oddfellows' Club entitled him to a sum of 10s. a week for six months when ill.

Financial Condition of the Patient during his Stay in the Sanatorium.

From the Charity Organisation Society . . .	7s. a week.
From the Oddfellows' Benefit Club . . .	10s. a week.

Condition on Discharge from the Cottage Sanatorium in April, 1903.

Lung Disease.—Completely arrested, impaired resonance only, no adventitious sounds audible.

General Health.—Completely restored, walking ten to twelve miles daily.

Normal Walking Capacity.—Completely restored.

After-History.

April, 1903.—On leaving Mundesley this patient returned to London and on our advice gave up his work at the coffee shop and tried to find a healthier kind of employment. This he found a very difficult matter. For three months he did nothing, and not being at all well off he had rather a hard time and was unable to get proper meals. He maintained his health, however, and in July obtained a situation as omnibus conductor.

July, 1903.—As omnibus conductor he worked from twelve to fifteen hours a day and earned 30s. a week. Out of this sum he had to pay for his board and lodging, clothes, etc., and was comfortably enough off. During the autumn of 1903 he married and went to live at Putney. He now found his income of 30s. per week to be barely sufficient for his requirements.

July, 1904.—In July, 1904, he gave up his post as omnibus conductor, which he had held for twelve months, and returned to his original employment in the coffee shop.

November, 1904.—When visited in November, 1904, this patient appeared to be perfectly well and was apparently comfortably off.

Social and Economic Conditions in November, 1904.

Work.—His work as a cook and carver in the coffee shop has already been described in the account of his conditions of work before contracting tuberculosis. He finds the work itself easy enough, but feels the heat much more than he used to do. He has lost fourteen pounds in weight during the three months he has worked in the cook shop.

Home Conditions.—He is living at Putney with his wife and one child. When at home he keeps out of doors as much as possible, and his bedroom has three windows of which the one nearest to himself is always kept open.

Wages.—Unknown. The patient declined to say what his wages were, but stated that he found his present work to be more profitable than 'bus conducting, and, moreover, more to

his liking. We are safe to assume that his income is something over 30s. per week.

The patient also declined to give any information as to his expenditure.

His diet is usually about as follows :—

Breakfast.—Eggs and bacon.

Dinner.—Meat, vegetables and pudding.

Tea.—Bread and butter and tea, sometimes jam or celery.

Supper.—Fish or bread and cheese, or bread and butter.

He drinks about a pint of milk every day and a glass of stout for supper.

May, 1905.—He wrote saying that he was still keeping very well. He was still working in the restaurant.¹

CASE V.²—Age 22.

Occupation.—Coal miner.

Type of Disease.—Early (infiltration) disease of apex of left lung.

Duration of Disease.—Four to six months.

Number of Weeks in Hospital.—Twenty.

CONDITION ON ADMISSION.

Fever.—Nil.

Digestion.—Good.

General Health.—Poor.

Weight.—8 stones 12 lb.

Relation of Weight to Highest

Known Weight before Illness.

— - 12 lb.

CONDITION ON DISCHARGE.

Nil.

Good.

Excellent.

9 stones 10 lb.

Equal to.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—His family consisted of his mother, himself and his younger brother and a sister. The patient was the only one at work and therefore bread-winner of the family.

Work.—In the coal mine his work consisted of picking

¹ February, 1906.—This patient is still at the same work and in good health.

² This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

coal from the seam and taking it to the foot of the shaft, a distance of some 400 yards, a particularly bad occupation for a consumptive. He worked nine hours a day.

Home Conditions.—He lived in a small cottage near the pit, which was in the country. The cottage had two bedrooms and one sitting-room. The patient himself is a steady man.

Wages.—He earned from 16s. to 18s. per week.

This patient is unable to give even an approximate statement of his expenditure at this time; all he knows is that the total income of the family was his 18s. per week, and that the whole family lived upon this sum. This patient and his family must be classed among the very poor, 16s. to 18s. per week being a totally inadequate sum for their proper maintenance.

Number in family in terms of men	2·8
Approximate weekly sum available for food per man	3s.

Financial Condition of Patient and his Family during his Stay in Hospital.

The patient says that his family were not any worse off when he had to go to the infirmary, “for his mother found a home and had sufficient income for herself and the two younger children”. She had not enough, however, to enable her to keep him on his return from the infirmary.

Condition on Discharge from the Infirmary in October, 1899.

Lung Disease.—Arrest apparently complete, there being no physical signs except impaired resonance at the apex.

General Health.—Completely restored.

Normal Working Capacity.—Completely restored.

After-History.

December, 1899.—After discharge from the infirmary he gave up his work in the coal mine and found employment as an outdoor labourer to a local telephone company. His work now consisted of helping to erect telephones, and though out of doors, was of a fairly arduous nature, since he had to do a



CONSUMPTIVE PATIENTS UNDER TREATMENT AT THE ROYAL INFIRMARY, SHEFFIELD (1899).



good deal of telephone pole-climbing with climbing-irons. He spent most of his evenings out of doors. His working hours were 7 A.M. to 5 P.M. The following were his economic conditions at this important period. He lived with a married sister who was in fairly comfortable circumstances, his home conditions being thus satisfactory. His work, as already stated, was of an outdoor nature and also proved to be very satisfactory. His income, moreover, of a guinea a week was more than sufficient for his wants and was spent in the following manner :—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages	1	1 0	By Board and lodging .	0	12 0
			„ Tram fares . . .	0	1 0
			„ Support of mother .	0	4 6
			„ Kept for himself . .	0	3 6
	<hr/>			<hr/>	
	£1	1 0		£1	1 0
	<hr/>			<hr/>	

Of this 3s. 6d. the patient now tells me he was careful to save what he could for fear he should be ill again.

The approximate weekly sum available for food was something between 6s. and 8s., an ample sum for his requirements. The actual diet he took was approximately as follows :—

Breakfast.—Tea only.

Lunch.—10. A.M. Bread and butter and jam.

Dinner.—12. Pork chop, potatoes, and plenty of milk pudding, no bread nor butter.

Tea.—6 P.M. Bread and butter and egg and tea.

Supper.—10 P.M. Either pork pie, fish and potato chips, bread and Polony sausage and a cup of cocoa made with water.

In all he took 12 ozs. of bread per day.

September, 1900.—He reported himself as being perfectly well and still at work for the telephone company.

February, 1901.—He again reported himself, this time from Barnsley, as being perfectly well and still at the same work.

January, 1902.—He was visited by Mr. Chapman in his own home at Sheffield. He was then still at work for the telephone company, and had not missed a day since commencing in December, 1899. Examination of his chest showed no evidence of lung disease except slight loss of resonance over the area originally affected. In appearance and in every other respect he was perfectly normal. He weighed 10 stones 2 lb., or five pounds more than when discharged from the infirmary. He was doing a hard day's work without the least fatigue, and in addition frequently walked home from his work in Barnsley, a distance of fifteen miles. Examination of his blood gave the following results: Hæmoglobin, 95 per cent.; red corpuscles, 4,300,000, giving a decimal of 1.1, a very good result, and an indication that his diet and life generally were satisfactory.

1903.—Throughout 1903 he fully maintained his health and remained at the same work. In June of this year he married.

January, 1904.—In answer to a letter, his sister sent us the following report about him: "My brother is now very busy. He has been promoted from labourer to be motor man, and he now looks after a large engine which makes electric light for the works. I am sure he has never enjoyed better health than he does now. He never complains of anything, no cough nor spit. We never expected him to live before he went to the infirmary, but people won't now ever believe he had consumption."

January, 1905.—In answer to a letter the patient sent the following report of himself and his economic and social conditions.

Social and Economic Conditions in January, 1905.

Family.—His family consists of himself and his wife, the only child they had, having died.

Work.—He is in charge of an 150 h.p. motor attached to a large grinding shop. This work, as he says, is indoors, but he is none the worse for it. He gave up work for the tele-

phone company because he found that going about to different towns entailed a good deal of expense in the shape of lodging, etc. Though less remunerative than his present occupation the telephone company work was certainly healthier. He works eight hours a day, but in addition often does overtime work for which he is paid extra. On the average he works ten hours daily.

Home Conditions.—He lives in a four-roomed cottage in Attercliffe, a thickly populated working-class suburb of Sheffield, and as smoky as Sheffield itself.

Wages.—He earns 22s. a week for forty-eight hours' work, but his income is rather more than this owing to the extra payment for overtime.

The following is an approximate statement of his income and expenditure :—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages . . .	1	6 0	By Rent	0	5 6
			„ Food	0	13 0
			„ Coals, light, etc. .	0	1 6
			„ Clothes, household ex- penses, etc. . . .	0	6 0
	£1	6 0		£1	6 0

Number in family in terms of men 1·8

Weekly sum available for food per man 7s.

May, 1905.—The last report of this patient was that he is in very good health and still at the same work.¹

CASE VI.²—Age 32.

Occupation.—Coachman.

Type of Disease.—Incompletely arrested disease of three lobes of the right lung.

Duration of Disease.—Two years, with periods of more or less complete arrest.

Number of Weeks under Treatment.—Fifteen.

¹ February, 1906.—He is still at the same work and in good health.

² This patient was one of those treated at the Mundesley Cottage Sanatorium.

CONDITION ON ADMISSION.	CONDITION ON DISCHARGE.
<i>Fever.</i> —Nil.	Nil.
<i>Digestion.</i> —Good.	Good.
<i>General Health.</i> —Fair, but unfit for work.	Practically quite restored.
<i>Weight.</i> —8 stones 6 lb.	8 stones 9½ lb.
<i>Relation of Weight to Highest Known Weight before Illness.</i> —	
– 3 lb.	Equal to.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—His family consisted of himself, his wife (suffering from pulmonary tuberculosis) and three young children, one of whom also had consumption.

Work.—As a coachman he worked in livery stables in London.

Home Conditions.—Not very comfortable.

Wages.—25s. a week and lodging.

The following is an approximate statement of his income and expenditure at this date :—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages . . .	1	5 0	By Rent (nil) . .	0	0 0
			„ Household expenses .	0	6 6
			„ Club subscription .	0	0 6
			„ Balance for food .	0	18 0
	<u>£1</u>	<u>5 0</u>		<u>£1</u>	<u>5 0</u>
Number in family in terms of men					3·0.
Approximate weekly sum available for food per man					6s.

Financial Condition of the Patient and his Family during his Illness.

The only private resources which this patient had in case of sickness was 10s. per week from a sick club, which fell to 5s. a week after six months. When he had to give up his work, he lost his house as well as his income, and in consequence had but 10s. a week with which to provide his

consumptive wife and three children with food and lodging. The only thing for him to do under these circumstances was to apply to the Guardians for relief, who then took charge of his family, the patient contributing his club money allowance. The Charity Organisation Society meanwhile paid his fee of 17s. a week for his treatment at the Mundesley Cottage Sanatorium. After his discharge from the cottage sanatorium, he was only out of work for a week, and during this time he received from the society just mentioned a quart of milk daily and an allowance of 6s. for food. During his stay in the cottage sanatorium one child died, which reduced his family after his discharge to his wife and two children.

*Condition on Discharge from the Cottage Sanatorium in
June, 1903.*

Lung Disease.—Quiescent and considerably arrested, adventitious sounds being few in number.

General Health.—Very largely restored. Walking seven miles daily.

Normal Working Capacity.—Probably quite restored.

After-History.

June, 1903.—On his discharge from the cottage sanatorium this patient returned to London and looked for another situation as coachman, as this appeared to be the best thing he could do. Being a man with a good character he had no difficulty in obtaining work.

April, 1904.—In April, 1904, in answer to our letter, this patient sent the following account of himself: "I am pleased to say that I am keeping well and strong since I left Mundesley. I have got a very comfortable place as coachman and have been in it about five months. I have been at work since the week after I left Mundesley and have never lost a day, in fact I feel as well as I ever did in my life and my weight is about the same as when I left Mundesley. I always sleep with my windows open. My wages are 29s. per week with

rooms, gas and coals. I have all my meals at home. I generally have eggs and bacon or fish for breakfast, and beef or mutton for dinner, with sometimes a milk pudding, jam roll or suet pudding. For supper I have cold meat and bread and cheese. I don't drink much milk as I don't much care for it. I have a glass or two of beer sometimes and occasionally a glass of whisky, in fact I don't find that anything hurts me. As to how many hours a day I work, well you know what a coachman's work is, sometimes I am out late at night. I quite believe that the treatment at Mundesley has set me up again."

November, 1904.—In November, 1904, this patient was visited in his own home.

Social and Economic Conditions in November, 1904.

Family.—His family consists of himself, his wife and two young children.

Work.—He is a private coachman to a gentleman, and lives in a mews in Kensington. In addition to the driving, which entails irregular and sometimes late hours, he has to clean the carriage, which means a certain amount of muscular exertion. However, he finds the work well within his powers, and has not lost a day's work since his return from Mundesley. The patient expressed himself as being in excellent health, and looked so.

Home Conditions.—He lives in a mews in Kensington, having three rooms rent free. The rooms are not very airy, the windows being small, but they gave one the impression of their occupants being in comfortable circumstances.

Wages.—He earns 29s. a week, with free quarters and gas, and in addition gets two suits of clothes a year. He is now, in fact, in better financial circumstances than he was before he went to Mundesley, and has been able to save a little money.

The following is an approximate statement of his income and expenditure:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages	1	9 0	By rent (nil)	0	0 0
			„ Household expenses .	0	8 0
			„ Subscription to club .	0	0 6
			„ Balance for food . .	1	0 6
	£1	9 0		£1	9 0

Number in family in terms of men 2.6

Approximate weekly sum available for food per man . . 7s. to 8s.

The following is a sample of a week's dietary taken by this patient at the present time :—

DAY.	BREAKFAST.	DINNER.	TEA.	SUPPER.
SUNDAY . .	Bloater, Bread, Butter, Tea.	Rabbit Pie, Potatoes, Cauliflower, Blanc Mange, Apples, Bread.	Tea, Bread, Butter, Cake.	Cold Beef, Cold Beans, Potatoes, Beetroot, Bread, Stout.
MONDAY . .	Cold Rabbit Pie, Bread and Butter, Tea.	Stewed Rabbit, Carrots, Turnips, Potatoes, Bread.	Tea, Bread and Butter.	Bread, Butter, Fresh Herring, Stout.
TUESDAY . .	Egg and Bacon, Bread, Butter, Tea.	Stewed Rabbit, Potatoes, Bread, Ground Rice.	Toast, Butter, Tea.	Haddock, Bread, Butter, Stout.
WEDNESDAY	Kippers, Bread, Butter, Tea.	Lamb, Potatoes, Cauliflower, Onion Sauce, Bread.	Bread, Butter, Tea.	Cold Mutton and Cauliflower, Bread, Stout.
THURSDAY .	Bread, Butter, Bacon, Eggs, Tea.	Mashed Turnip, Cold Mutton, Potatoes, Jam, Suet Pudding and Bread.	Tea, Bread and Butter.	Cold Mutton, Bread and Stout.
FRIDAY . .	Kippers, Bread, Butter, Tea.	Stewed Steak, Carrots, Turnips, Bread.	Bread, Butter, Tea.	Mackerel, Bread and Butter, Stout.
SATURDAY .	Pressed Pork, Bread, Butter, Tea.	Stewed Steak, Turnips, Potatoes, Carrots, Bread.	Bread, Butter, Tea.	Fish, Bread, Butter and Stout.

This patient always drinks half a pint of stout for lunch and the same at supper. In addition to this he usually has a glass or two of stout during the day, and occasionally he takes some spirits. He has practically no milk whatever except in tea, puddings, etc.

May, 1905.—This patient is still in very good health and at the same work.¹

CASE VII.²—Age 19.

Occupation.—Apprenticed to the cabinet-making trade.

Type of Disease.—Early (infiltration) disease of one apex.

Duration of Disease.—Indefinite; probably twelve months with periods of complete arrest. Recent illness of three months' duration.

Number of Weeks under Treatment.—Ten.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—98·6 A.M. to 100·4 P.M.

Nil.

Digestion.—Normal.

Normal.

General Health.—Very poor.

Excellent.

Weight.—8 stones 12 lb.

11 stones.

Relation of Weight to Highest Known Weight before Illness.

—Unknown, but certainly considerably below.

Certainly well above.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—This patient was unmarried and lived at home with his father, his mother, a married sister and her two children.

Work.—As a cabinet-maker's apprentice he worked in a very close and dusty shop from 7.30 A.M. to 6.30 P.M., with one hour off for dinner.

Home Conditions.—His home was comfortable. Personally he had been rather careless in his habits. He had kept late

¹ February, 1906.—No report yet received.

² This person was treated in a chalet in the grounds of the Mundesley Sanatorium on an entirely meat-free diet.

hours, often not being in bed until between 1 and 2 A.M.; he had to be up again at 6 A.M. His meals, too, had been somewhat inadequate, although there had been no financial necessity for this. His daily dietary had been roughly as follows: Breakfast, bread and butter and tea; dinner (usually in a cook shop), potatoes, greens and pudding and sometimes meat; this on the average cost 8d. a day. Tea (at home) consisted of bread and butter and tea. Supper of bread and cheese with butter, and sometimes fish and potatoes. He always had better meals on Sundays.

Wages.—He earned 12s. 6d. per week.

The following is an approximate statement of his income and expenditure at this date:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages	0	12 6	By Fares	0	1 0
			„ Dinners	0	3 0
			„ Kept for himself . .	0	2 6
			„ Gave to his family . .	0	6 0
	<hr/> £0 12 6 <hr/>			<hr/> £0 12 6 <hr/>	

The family was independent of the patient's wages, as the father had a pension of 63s. a week. This sum just about covered their expenses.

Condition on Discharge in September, 1903.

Lung Disease.—Arrest apparently complete, physical signs being limited to impaired resonance and no adventitious sounds being audible.

General Health.—Excellent; better, in fact, than it had ever been in his life. Walking ten to twelve miles daily.

Normal Working Capacity.—Very largely restored. A tendency to slight hæmoptysis, however, rendered him unfit for anything but light work.

After-History.

September, 1903.—After discharge this patient went to Henley-on-Thames, his family having moved there during

his illness. Upon his leaving Mundesley he saw Dr. Fowler at the Middlesex Hospital, in whose wards he had been treated previous to his coming to Mundesley. Dr. Fowler advised him not to commence work but to continue the treatment at home, there being no urgent financial necessity for his earning his own living.

November, 1904.—When visited in November, 1904, fourteen months after his discharge, this patient was in excellent health, and except for slight colour in his sputum on one or two occasions he had been quite well since leaving Mundesley. He was walking twelve miles simply for exercise, and seemed quite fit for light work. He had not seen Dr. Fowler for four months past. He had done no serious work since his return home, although he had done a little gardening and carpentering for his own people.

Social and Economic Conditions in November, 1904.

Family.—His family consists of his father and mother, himself, a married sister and her two children.

Home Conditions.—His conditions at home are still quite comfortable. The house is an airy one and the patient has a room to himself; he always keeps his windows open. Since his return from Mundesley he has completely changed his habits; he now keeps early hours and is very careful about his meals. He feels he can do a light job provided the hours are not too long.

The following is an approximate statement of his income and expenditure at this time:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Father's pension .	3	3 0	By Rent, taxes, etc. .	0	14 0
			„ House expenses .	0	7 0
			„ Clothes, etc .	0	12 0
			„ Balance for food .	1	10 0
	£3	3 0		£3	3 0
Number in family in terms of men					4·6
Approximate weekly sum available for food per man					5s. 3d.

The following is a sample of a week's dietary taken by this patient :—

DAY.	BREAKFAST.	DINNER.	TEA.	SUPPER.
SUNDAY . .	Quaker Oats, Egg, Tea, Toast and Butter.	Beef, Haricot Beans, Potatoes, Sprouts, Bread, Rice Pudding, Fruit.	Bread, Butter, Jam, Tea.	Quaker Oats, Egg, Bread, Butter, and Half Pint Skim Milk.
MONDAY . .	Bacon, Bread and Butter, Tea, Quaker Oats.	Beef, Potatoes, Greens, Beetroot, Tapioca, Bread.	Bread, Butter, Jam, Tea.	Quaker Oats, Egg, Bread, Butter, Half Pint Skim Milk.
TUESDAY . .	Quaker Oats, Bloater, Bread, Butter, Tea.	Steak Pudding, Potatoes, Greens, Haricot Beans, Bread.	Bread, Butter, Jam, Tea.	Quaker Oats, Rice Pudding, Bread and Butter, Half Pint Skim Milk.
WEDNESDAY	Quaker Oats, Egg, Toast and Butter, Tea.	Boiled Bacon, Haricot Beans, Greens, Potatoes, Jam Tart, Bread.	Toast, Butter, Tea.	Quaker Oats, Beef Sausage, Bread, Butter, Half Pint Skim Milk.
THURSDAY .	Quaker Oats, Bloater, Bread, Butter, Tea.	Potatoes, Greens, Cucumber Haricot Beans, Apple Pudding, Bread, Butter, Fruit.	Bread, Butter, Jam, Tea.	Egg, Bread, Butter, Half Pint Skim Milk.
FRIDAY . .	Quaker Oats, Toast, Butter, Egg, Tea.	Fish, Potatoes, Butter Sauce, Greens, Haricot Beans, Bread, Rice Pudding.	Bread, Butter, Jam, Tea.	Quaker Oats, Egg, Bread, Butter, Half Pint Skim Milk.
SATURDAY .	Quaker Oats, Bread, Butter, Bacon, Tea.	Haricot Beans, Potatoes, Greens, Jam Tart, Bread, Fruit.	Toast Butter and Tea.	Quaker Oats, Egg, Bread, Butter, Half Pint Skim Milk.

In addition to this, the patient drinks one and a half pints of skim milk during the day and on three days a week he has

half a pint of new milk as well. It is of interest to note that he says that he preferred the meat-free diet which he had at Mundesley to his present diet.

May, 1905.—The patient is still very well. He is still living the same life, but is looking out for some suitable employment.¹

CASE VIII.²—Age 22.

Occupation.—Labourer.

Type of Disease.—Early disease of two lobes considerably arrested.

Duration of Disease.—Twelve months.

Number of Weeks under Treatment.—Twelve.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—Nil.

Nil.

Digestion.—Impaired.

Improved.

General Health.—Poor.

Very fair.

Weight.—10 stones 3 lb.

11 stones 6 lb.

Relation of Weight to Highest

Known Weight before Illness.—

– 15 lb.

+ 2 lb.

Social and Economic Conditions at Date of Contraction of Tuberculosis.

Family.—His family consisted of himself, his mother and a grown-up brother.

Work.—He was a chaff-cutter in one of the depôts of the London General Omnibus Co. This work is distinctly heavy and is done in a room which though large and airy is always dusty; fifteen other men are also employed in the same place. He worked nine hours a day except on Saturdays, when he only worked four hours. He had been employed as a chaff-cutter for eighteen months. Previous to this he was “humping” wood off barges for a part of the day, and for the rest of it he picked up blocks of wood as they fell from a wood-cutting

¹ February, 1906.—This patient is in good health and able to work.

² This patient was treated at the Mundesley Cottage Sanatorium.

machine. Wood humping is very heavy work and is paid for at the rate of 6d. per hour.

Home Conditions.—He and his mother and brother lived in three rooms in Chelsea and were quite comfortably off. He was careless about his meals and did not take as good a diet as he might have done considering his income.

Wages.—He earned 24s. a week.

The following is an approximate statement of his income and expenditure at this date. The weekly budget of his family is given since they shared their income and expenses:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages of patient .	1	4 0	By Rent .	0	8 0
„ Wages of brother .	1	4 0	„ Patient kept for him- self	0	8 0
In addition mother occasionally earns a few shillings .			„ Brother kept for him- self .	0	8 0
			„ Balance for food, household ex- penses, etc. .	1	4 0
	<u>£2</u>	<u>8 0</u>		<u>£2</u>	<u>8 0</u>
Number in family in terms of men				2·8	
Approximate weekly sum available for food per man				6s.	

Financial Condition of Patient and his Family during his Stay in the Sanatorium.

The patient's fee of 17s. a week was paid by the Charity Organisation Society. His mother was maintained by his brother.

Conditions on Discharge in April, 1903.

Lung Disease.—Arrest not quite complete, a few adventitious sounds being audible.

General Health.—Good. Walking six miles a day.

Normal Working Capacity.—Incompletely restored; quite fit for work not entailing very much exertion. This patient was handicapped by having double mitral disease which, though well compensated, prejudiced his prognosis.

After-History.

April, 1903.—On his discharge from Mundesley, this patient returned to London and tried to find some suitable employment. This he found most difficult to do. In reference to this, the Charity Organisation Society wrote to me as follows: "The Chelsea Committee on the patient's return from Mundesley tried in all possible ways to get him employment in the country which they were advised was the only thing likely to be of real use to the man, but owing to his condition, with both lungs and heart wrong, and his being unskilled and not very adaptable, they quite failed in their object. Of course the case passed from the committee's hands when it was found impossible to obtain employment for him." The patient also failed to get regular employment in London, but got odd jobs from the parish, which are paid for at the rate of 6d. per hour. This work consists of road cleaning, and though he does this whenever he can, it only averages about two days a week. This brings in an income of 7s. 6d. per week.

March, 1904.—In March, 1904, he wrote to say that his health was again poor and that he was attending the Brompton Hospital as an out-patient. He added that he thought he would have kept well if he had got proper food, but owing to the loss of his income he and his family had been unable to live as well as formerly. The family income was, in fact, reduced by some 14s. a week owing to the patient's inability to return to his former employment, and the weekly sum available for food per man was reduced to some 4s., which meant that their diet became inadequate. Under these conditions it was only to be expected that his health would deteriorate.

November, 1904.—When visited in November, 1904, this patient was still out of regular work, but the parish found him employment on two days of the week.

Social and Economic Conditions in November, 1904.

Family.—Is the same as before admission.

Work.—He gets up every morning at 5.30 and walks down to the vestry yard to inquire for a job. If successful he starts work either at 6 A.M., leaving off at 5.30 P.M., or at 8.30 A.M., leaving off at 7.30 P.M. Out of these hours there is an allowance of a half-hour for breakfast and one hour for dinner. He always goes home to his meals. He says that he could easily get indoor work again, but will not take it on account of his health. Regular outdoor work of a suitable nature he finds quite impossible to obtain.

Home Conditions.—At the present time he lives in a fair-sized house in Chelsea, containing nine rooms. He shares this house with his mother, his brother, a married sister, her husband and their two children. He always keeps his bedroom window open. The patient appeared to be in very fair health, and quite fit for light work if he could find it.

Wages.—His average weekly earnings are 7s. 6d. per week.

This patient's loss of income means material reduction in the income of the family, and the patient himself is now to some extent dependent upon them instead of being a help. Apparently the married sister and her husband, although living in the same house, do not make any contribution to the income of the patient's family. From a financial point of view they are quite independent, so we can omit their income and expenditure from the weekly budget.

The following is an approximate statement of the income and expenditure of this patient and his family at this date:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Patient's wages.	0	7 6	By Rent.	0	7 6
„ Brother's wages	1	4 0	„ Household expenses.	0	4 6
			„ Brother keeps for himself.	0	8 0
			„ Balance for food	0	11 6
	<u>£1</u>	<u>11 6</u>		<u>£1</u>	<u>11 6</u>
Number in family in terms of men					2.8
Approximate weekly sum available for food per man					4s.

When the patient is out of work altogether—as he is for a week or two at a time now and again—his family is distinctly poor and certainly not in a position to keep the patient's standard of living up to what it should be. We notice from the budget that no allowance is made for expenditure upon clothes; this is correct, since the patient trusts entirely to charity for his clothing.

The following is approximately the weekly diet taken by this patient when he is in work :—

DAY.	BREAKFAST.	DINNER.	TEA.	SUPPER
SUNDAY .	Bacon, Eggs, Bread, Butter, Tea.	Roast Mutton, Greens, Potatoes.	Bread, Butter, Tea.	Cold Mutton, Bread, Butter, One and a Half Pints of Milk.
MONDAY .	One Egg, Bread and Butter, Tea.	Cold Mutton, Potatoes and Bread.	Bread, Butter, Marmalade, Tea.	One and a Half Pints of Milk.
TUESDAY .	Haddock, Bread, Butter, Tea.	Bread, Chop and Potatoes.	Bread and Butter, Tea.	One and a Half Pints of Milk.
WEDNESDAY	One Egg, Bread and Butter, Tea.	Chop, Potatoes, Greens, Bread.	Bread, Butter, Marmalade.	Nil.
THURSDAY .	Bread and Dripping, Tea.	Chop, Potatoes, Bread.	Tea, Bread and Butter.	Nil.
FRIDAY .	Haddock, Bread, Butter, Tea.	Steak, Potatoes and Bread.	Bread, Butter, Herrings, Tea.	Nil.
SATURDAY .	Haddock, Bread, Butter, Tea.	Chop, Potatoes, Bread.	Bread, Butter, Herring, Tea.	One and a Half Pints of Milk.

May, 1905.—The patient is in very fair health but still unable to follow any regular employment.

February, 1906.—No report yet received.

CASE IX.¹—Age 39.*Occupation.*—Gardener.*Type of Disease.*—Fairly extensive disease of three lobes of the right lung, partially arrested.*Number of Weeks under Treatment.*—Twenty-six.

CONDITION ON ADMISSION.

Fever.—Slight.*Digestion.*—Good.*General Health.*—Fair.*Weight.*—11 stones 7 lb.*Relation of Weight to Highest**Known Weight before Illness.*

— - 28 lb.

CONDITION ON DISCHARGE.

Nil.

Good.

Good. Walking ten miles daily.

13 stones 7 lb.

Equal to.

*Social and Economic Conditions at Date of Contraction of Tuberculosis.**Family.*—His family consisted of himself, his wife and five children, aged from five to thirteen years.*Work.*—His work was the ordinary routine of a gardener to a private family. The grounds were only small so he also assisted in the stable.*Home Conditions.*—He lived rent free in a five-roomed cottage. The patient himself is a steady, intelligent man. As a lad he had worked on a farm until he was twenty. He was then for some years in the police force. After leaving the police he took a small farm of twenty acres, but this not proving very profitable, he took to gardening. The patient's wife is also a sensible and capable person.*Wages.*—He earned 18s. a week. In addition he had his cottage rent free and made a certain amount of money in tips.

The following is an approximate statement of his income and expenditure at this date :—

¹ This patient was treated in rooms in Mundesley village.

INCOME.			EXPENDITURE.		
	£	s. D.		£	s. D.
To wages (weekly)	0	18 0	By household expenses	0	6 0
„ Average income from tips	0	4 0	„ Sick club	0	0 6
	£1	2 0	„ Balance for food	0	15 6
				£1	2 0
Number in family in terms of men			4·4		
Approximate weekly sum available for food per man			3s. 6d.		

This sum (3s. 6d.) was clearly inadequate to provide the patient and his family with an efficient diet, and I think that the man's breakdown must at least in part be attributed to this cause. The following is a rough idea of his daily dietary: Breakfast, porridge, bacon or eggs and bread and butter; dinner, generally meat and vegetables with bread, and occasionally a milk pudding; tea, bread and butter and tea; supper, usually none.

Financial Condition of Patient and his Family during his Illness.

The patient was treated gratuitously. His wife and family throughout his illness were maintained by a lady who was interested in them. The family in addition had 10s. a week from the Oddfellows' Sick and Benefit Club. This sum was paid for six months.

Condition on Discharge in March, 1904.

Lung Disease.—Very largely arrested, adventitious sounds being few and audible only on cough.

General Health.—Very largely restored. He suffered, however, a good deal from dyspnoea on exertion.

Normal Working Capacity.—Incompletely restored; fit only for moderately light work.

After-History.

March, 1904.—This patient on his discharge at once obtained a situation as gardener on a small property in the country.

November, 1904.—In November, 1904, this patient was visited. He was then in the same situation and enjoying very fair health.

Social and Economic Conditions at this Date.

Family.—As before admission.

Work.—His post was that of a gardener on a fair-sized property, where an assistant gardener is kept and additional labour taken on when there is much digging to be done. The patient is head gardener and is thus able to avoid much of the heaviest gardening work which a man has to do when single-handed, *e.g.*, digging, wheeling heavy barrows, etc. His hours are from 8.30 to 5 P.M. The patient said that he was quite able to do the work deputed to him, but could not do a really hard day's work. He had enjoyed good health since his return to work, his only trouble being dyspnœa on exertion. During his first four months at work he lost 14 lb. in weight, but since then he had remained stationary. Examination of his lungs at this date showed further improvement since his discharge, no moist sounds now being audible.

Home Conditions.—Comfortable. He lives in a well built eight-roomed cottage in a very healthy situation.

Wages.—He earns 20s. a week and lives rent free. He also receives 5s. a week from the lady who helped his family during his illness.

The following is an approximate statement of his income and expenditure at this date:—

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Wages . . .	1	0 0	By Flour and bread . . .	0	5 0
„ Allowance . . .	0	5 0	„ Groceries . . .	0	7 6
			„ Meat . . .	0	4 0
			„ Milk (4 pints daily) .	0	3 6
			„ Eggs . . .	0	1 3
			„ Coal . . .	0	1 11
			„ Oil and candles . . .	0	0 6
			„ Club subscription . .	0	0 6
			„ Clothes . . .	0	0 10
	£1	5 0		£1	5 0

Number in family in terms of men 4·4

Approximate weekly sum available for food per man . 4s. 10d.

The patient on five days a week has a good dinner at the

house where he works—a material saving in his wife's house-keeping. This has not been allowed for when estimating the amount available for food for the family, so the figures in this particular are rather better than they appear. The patient's meals at this time were approximately as follows:—

Breakfast, 7.30.—Bread and milk with bacon or egg.

Lunch, 11.30.—Cake, biscuits, etc.

Dinner, 1.30.—Meat, two vegetables, bread, milk or suet pudding and a pint of milk.

Tea, 6 P.M.—Bread and butter, meat, milk pudding and milk. In all he took two and a half pints of milk a day.

May, 1905.—This patient had a somewhat severe attack of hæmoptysis in January and was laid up for some weeks. His employer paid him his wages throughout his illness so that his financial conditions remained unaltered. At the present time he is back at work again and enjoying very fair health, shortness of breath being his chief trouble as before.¹

CASE X.²—Age 34.

Occupation.—Workhouse hospital attendant.

Type of Disease.—Recent active disease of the upper and lower lobes of the right lung.

Duration of Disease.—Four months.

Number of Weeks under Treatment.—Thirteen (in hospital); he rested a further seven weeks at home before returning to work.

CONDITION ON ADMISSION.

Fever.—Slight.

Digestion.—Poor.

General Health.—Poor.

Weight.—9 stones 7 lb.

Relation of Weight to Highest

Known Weight before Illness.

— 21 lb.

CONDITION ON DISCHARGE.

Nil.

Excellent.

Excellent.

10 stones 10 lb.

— 4 lb.

¹ February, 1906.—He is in fair health. Owing to a sale of the property he has lost his situation, and has at present no regular employment.

² This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

Financial Condition of Patient and his Family during his Illness.

He left off work on 29th July, 1899, and returned to work in December, 1899.

During the first ten weeks he had the following income :—

From the workhouse authorities	.	.	.	.	.	£1	2	0
„ his benefit club	.	.	.	.	.	0	18	0
Total per week	.	.	.	.	.	£2	0	0

During the next three weeks he had the following income :—

From the workhouse authorities	.	.	.	.	.	£1	2	0
„ his benefit club	.	.	.	.	.	0	12	0
Total per week	.	.	.	.	.	£1	14	0

During the remaining seven weeks he had 12s. a week from his benefit club. The patient thus had on the average 29s. a week for the support of his wife and family. This proved quite sufficient for their proper maintenance.

Condition on Return to Work in December, 1899.

Lung Disease.—Arrest practically complete, a few adventitious sounds only after cough.

General Health.—Excellent.

Normal Working Capacity.—Completely restored.

After-History.

December, 1899.—He returned to work for the Fir Vale Workhouse (an institution situated on the outskirts of Sheffield), the master having given him employment as cattle tender on the workhouse farm. His working hours were from 6 A.M. to 6 P.M. He continued to live at his own house which, though only half a mile from the workhouse, is three miles from the farm. This work, though not involving any manual labour, was tiring, since he was standing about practically the whole day in addition to his walk of three miles

every morning and evening. This routine did not prove quite satisfactory, as he felt very tired after his day's work.

January, 1900.—The workhouse authorities took him off the farm and found him employment in the workhouse itself. His new duties consisted in looking after the lunatic inmates. This work was much lighter and took him a good deal out of doors. For five hours a day he was in charge of the lunatics working in the gardens ; the rest of the time was spent in the day-room and dining-room. His hours were from 7 A.M. to 7 P.M., and instead of being three miles from his home he was only a quarter-mile away. Under these new conditions of work he rapidly improved in health.

September, 1900.—At this date he was feeling very well indeed, and looked in excellent health. He was still at the same work.

February, 1901.—He is still in splendid health and had not missed a day's work since his return.

October, 1901.—He wrote saying that he was as well or even better than when he left the infirmary two years previously.

January, 1902.—He was visited in his own home by Mr. Chapman. His house was not very airy, and beyond sleeping with his window open, he did not go in for much open air at home. His conditions of life at the workhouse seemed most satisfactory. The disease in the lungs was completely arrested and his temperature was normal (97 A.M. to 98·4 P.M.). His general health was excellent and his weight 11 stones, at which it had long been stationary. His appetite and digestion were normal. Examination of his blood gave the following result: Hæmoglobin, 98 per cent.; red corpuscles, 4,800,000; another proof of the excellence of his general health.

August, 1902.—Another good report was received from him at this date: "Temperature and pulse normal; weight, 10 stones 12 lb.; general health very good indeed; still doing my work with ease." Dr. Bellamy, the house surgeon to the workhouse, had recently examined his sputum and found no bacilli. The sputum had also by now almost disappeared.

February, 1903.—He was again visited by Mr. Chapman in Sheffield. He had been at work and in good health since the last report. He had rather a severe cold on him at the time, and probably resulting from this there were some moist sounds audible in the right lung. With the possibility of these sounds being due to fresh tuberculous activity, he was advised to get leave of absence and come for a time to the cottage sanatorium at Mundesley, which had just been started. The workhouse master agreed to this proposal, and in March, 1903, he came to Mundesley.

March, 1903.—His condition on arrival was distinctly better than it had been ten days previously, when seen in Sheffield; the cold and with it the moist sounds having cleared up. His temperature was normal, but he was a trifle ($3\frac{1}{2}$ lb.) below his highest known weight of 11 stones. After a stay of six weeks his general health was completely restored in every respect. He weighed 11 stones 1 lb., and was walking from 8 to 10 miles a day without the least fatigue. The lung disease appeared to be completely arrested, some impairment of resonance being the only physical sign to be noticed in his chest.

January, 1904.—He reported himself as still at work and in good health.

January, 1905.—In answer to a letter he wrote saying that he was still in good health and at work. He also sent the following account of his social and economic conditions at the present time. This description applies equally well to the last five years, with the exception that the family income is now increased by 5s. a week, the wages of his eldest son who has recently started work.

Social and Economic Conditions in January, 1905.

Family.—Still consists of himself, his wife and their five children, now aged from six to fifteen years.

Work and Home Conditions.—These have already been described and as previously stated, they are quite satisfactory.

Wages.—He earns 32s. 8d. per week.

The following is an approximate statement of his weekly income and expenditure at this date :—

INCOME.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
To Wages (patient) . . .	1	12	8	By Rent.	0	4	9
„ Wages (son)	0	5	0	„ Lights and coal . . .	0	2	0
				„ Clothes	0	5	0
				„ Household sundries . .	0	2	8
				„ Subscriptions to Super- annuation Fund . . .	0	2	3
				„ Balance for food . . .	1	1	0
	<hr/> £1 17 8 <hr/>				<hr/> £1 17 8 <hr/>		
Number in family in terms of men					4·7		
Approximate weekly sum available for food per man					4s. 4d.		

As a matter of fact this patient gets most of his meals at the workhouse infirmary. The cost of these forms part of his salary and in preparing the budget has been included in it. The patient actually receives 24s. in cash, the extra 8s. 8d. being received in the shape of food and clothes.

May, 1905.—He wrote to say “that he had not been quite so well; in March he had a struggle with a lunatic which brought on an attack of hæmoptysis. This soon cleared up and on the date of writing (14th May), he was returning to work on the following day.¹”

COMMENTARY.

Review of these Ten Patients from a Clinical Standpoint.

When attempting to form an estimate of the prognosis of any consumptive, the clinical condition of the patient when he first comes under treatment is probably the factor to which one attaches the most importance; for though experience has shown one that patients with the best possible prognosis may prove most disappointing failures if compelled by various circumstances to return after treatment to unfavourable conditions of life and work, and that conversely, patients with somewhat advanced disease sometimes do unexpectedly well if they are fortunate enough to find healthy employment

¹ February, 1906.—This patient is in good health, and at the same work.

TABLE NO. I.—CLINICAL SUMMARY.

No. of Case.	Type of Disease.	Duration of Disease.	Period Under Treatment.	On Discharge.		Condition on 1st May, 1905. ³
				Condition of Lungs.	Normal Working Capacity.	
1	Infiltration of 1 lobe	3 months	12 weeks	Disease completely arrested	Completely restored	Health excellent; at full work after 2 years.
2 ¹	Infiltration of 1 lobe	3 months	11 weeks	Disease completely arrested	Completely restored	Health excellent; at full work after 16 months.
3	Infiltration of 2 lobes	4 months	14 weeks	Disease completely arrested	Completely restored	Health excellent; at full work after 2 years.
4	Infiltration of 1 lobe	3 months	13 weeks	Disease completely arrested	Completely restored	Health excellent; at full work after more than 2 years.
5	Infiltration of 1 lobe	4 months	16 weeks	Disease completely arrested	Completely restored	Health excellent; at full work after 5½ years.
6	Disease of 3 lobes considerably arrested	2 years	15 weeks	Disease incompletely arrested (A)	Completely restored	Health excellent; at full work after 2 years.
7 ²	Infiltration of 1 lobe	3 months	10 weeks	Disease completely arrested	Normal working capacity not completely restored, but quite fit for light work.	In good health but doing no regular work; living at home in the country.
8	Infiltration of 2 lobes considerably arrested	12 months	12 weeks	Disease incompletely arrested (A)		In fair health, doing light work (casual) after 2 years.
9 ¹	Active disease of 3 lobes	6 months	46 weeks	Disease incompletely arrested (A)		At light work and in very fair health after 14 months.
10 ¹	Active disease of 2 lobes	3 months	13 weeks	Disease incompletely arrested (A)		Health excellent; at full work after 5½ years.

¹ These patients had some degree of fever and other symptoms of active disease.

² This patient's unfitness for work is due to a history of recurrent hæmoptysis.

³ The 1906 reports were received after going to press, and are not included in any of the tables.

which brings them in a living wage, the broad fact remains that the smaller and less active the area of disease, the better is the outlook both for the immediate present and for the future. I propose, then, first to review briefly the ten patients from the point of view of their several clinical conditions when they first came under treatment. Such a review is shown in Table No I. which also includes data as to the length of time each patient was under treatment, and his condition on discharge and at the present time. I have purposely not given a detailed description of the clinical condition of each case before and after treatment. For our present purpose it would be of no great value. Moreover, the reaction of favourable cases of consumption to sanatorium treatment, *viz.*, gain of weight and strength and improvement in physical signs, are well known. It will be sufficient for me, after having noted the type of consumption to which each patient belonged, to say that the progress of all of them under treatment was characteristically satisfactory. The clinical condition of each patient when discharged is a more important point to state clearly, but a difficult matter to do briefly. The approximate condition of the lung disease, the patient's general health, and the degree to which normal working capacity had been restored are, I think, the chief points to be noted; for the sake of brevity I have in this book made use of various terms to express them. I have to thank my friend Dr. Fowler for his assistance in framing the following definitions to indicate the condition of patients on discharge from treatment.

1. Complete arrest of the disease. General health completely restored in every respect and lung disease completely arrested (apparent cure), there being no physical signs present, or only such as are compatible with a completely healed lesion.

2. Incomplete arrest of the disease. (a) General health completely restored; physical signs of lung disease, though much improved not entirely cleared up, *e.g.*, perhaps limited to a few moist sounds on cough. (b) General health only imperfectly restored; physical signs of lung disease, *e.g.*, moist sounds, etc., still well marked.

It will be seen from Table No. I. that six of the ten patients were really early cases, the disease in five of them being apparently limited to recent infiltration of the apex of one lobe, and in the case of the sixth of the apices of the upper and lower lobes of one lung; the average duration of the disease in these six patients being some three and a half months only. In all these six patients there was an absence of any serious constitutional impairment, although two of them, Nos. 2 and 7, had some fever. They belonged in short to the type of consumption from which by far the largest number of successes are obtained. Cases Nos. 6 and 8, with two and three lobes affected, and with disease of one and two years respectively, though "chronic" when judged by the length of time they had been consumptive, were in fact still only early cases, pathologically speaking. Both of these patients had enjoyed long periods of more or less complete arrest of their disease, so that in neither case had it made much progress; neither had their general health been much damaged. The prognosis in the case of these two was then not much worse than in the case of the preceding six and they reacted to treatment just as well. The last two patients, Nos. 9 and 10, both had active disease of a more extensive character with some fever and other symptoms of active tuberculosis. Their prognoses were in consequence distinctly less favourable than was the case in the other eight, although by no means bad, certainly so far as the immediate present was concerned. Taking these ten patients together, one may safely say that clinically speaking they were on admission a distinctly favourable set of men. If the sanatorium treatment is indeed of any lasting value, it is from such a class of patient as this that a fair proportion of permanent successes may be looked for; nor can the results in these cases be considered otherwise than satisfactory. The conditions of these men when discharged were as follows. No less than eight of them were restored to their normal working capacity and the remaining two sufficiently restored for work of a fairly light character.

Review of the Social and Economic Conditions of these Ten Patients.

As I have already remarked, when reviewing the prospect of these ten patients from a clinical standpoint, the conditions of life and work to which any consumptive returns after treatment is in the long run probably almost as important a factor as any in determining his subsequent life-history. In the case of the consumptive working man this is especially true. Fully to appreciate this fact and the difficulties, often insuperable, which confront many of them when they become tuberculous, some knowledge of the conditions which govern the life of the working classes is necessary. The study of the social and financial conditions of these ten patients serves to illustrate the importance of this subject, and I propose in the next place briefly to describe them. The most important points to be noted are:—

1. Work and wages.
2. Financial obligations., *viz.*, the number of people dependent upon them.
3. Their ability to obtain a diet of adequate nutritive value for the maintenance of tuberculosis in arrest.
4. Their financial resources when out of work through illness, trade depression or any other cause.

As a matter of experience one finds that these factors are all intimately associated and depend one upon the other, *e.g.*, any specific income would prove to be adequate or inadequate for any individual in proportion to the amount he has to do with it. A single man earning 18s. a week will often be found to be taking a proper diet and to be living under suitable conditions of life and work. He can afford to do so. A man with a wife and family with similar work and income on the other hand is often found to be living in poverty. The division, then, of the subject of social conditions into various heads is somewhat arbitrary although convenient: in reality they can all be included under one head, *viz.*, the capacity of any individual consumptive to earn a living wage. By this, one means a sum adequate for the main-

tenance of the physical efficiency of himself and his family. If a consumptive returns to the most suitable employment possible from a health point of view, but one at which he cannot earn an income adequate for his requirements, he fails ; his home conditions and his diet both becoming unsatisfactory. On the other hand, a return to sufficiently remunerative but not very healthy work also frequently ends in failure. A period of good health, adequate income, and with it satisfactory home conditions and an efficient diet is followed by one of reduced income due to failure to maintain health. With this reduction in income are associated loss of home comforts, inadequacy of diet, etc., in short, conditions of poverty. In both these examples failure is due to inability to earn a living wage. A living wage, then, is only a relative term.

With these preliminary remarks I will now discuss the social conditions of the ten men now under consideration.

1. *Occupation and Wages.*—In table No. II. are shown the occupations and weekly wages of these ten patients at the date of their contracting tuberculosis, and the employment and wages they returned to after discharge from treatment. I have in the table grouped the patients under two headings, *viz.*, those who had only themselves to keep and those who were the bread-winners of families, for the weekly income of any man loses much of its significance if his financial obligations are not also shown. Of the occupations of these ten men when they became tuberculous, those of the unmarried men were all unsuitable for a case of arrested consumption, *viz.*, a brewer's drayman, restaurant cook (in a side street off the Strand), coal miner and cabinetmaker.

These four all gave up their employments when discharged, and three of them were fortunate enough to obtain work of a much more suitable character, *viz.*, as coachman in the country, omnibus conductor, and outdoor worker for a telephone company. The two former lost respectively 14s. a week and 6s. a week by the change, but having no one dependent upon them they could afford to make this financial sacrifice in the interests of their health ; their new incomes

TABLE No. II.—SHOWING THE OCCUPATIONS AND WAGES OF THE PATIENTS AT THE DATE OF CONTRACTION OF TUBERCULOSIS AND SUBSEQUENT TO THEIR DISCHARGE.

No. of Case.	At the Date of Contraction of Tuberculosis.		After Discharge.		
	Employment.	Wages.	Employment.	Wages.	Weekly Loss or Gain in Income.
2 4 5 7 Unmarried and pendent on them, with no one de-	Brewer's Carman (London)	27s. per week	Coachman (Country)	18s. a week and lodging = 23s. weekly	- 4s.
	Cook in Restaurant (London)	20s. with board and lodging = 36s. weekly	Omnibus Conductor	30s. per week	- 6s.
	Coal Miner	16s. to 18s. per week	Telephone Company's Labourer	21s. per week	+ 4s.
	Cabinetmaker	12s. 6d. per week	Light work at home	Nil	- 12s. 6d.
3 1 6 9 Married with families, or others dependent upon them.	(A) Wood Sawyer	32s. per week	Wood Sawyer	30s. per week	- 2s.
	(B) Salvation Army Officer	28s. to 30s. per week	Insurance Agent for Salvation Army	23s. 6d. per week	- 6s. 6d.
	(C) Coachman (London)	25s. and house = 30s. weekly	Coachman (London)	29s. and house = 34s. weekly	+ 4s.
	(D) Gardener	22s. and cottage = 27s. per week	Gardener	25s. and cottage = 32s. and dinner weekly	+ 5s.
10 8 Married with families, or others dependent upon them.	(E) Workhouse Attendant (Indoor)	30s. 8d. per week	Workhouse Attendant (Outdoor)	30s. 8d. per week	The same
	(F) Chaff Cutter	24s. per week	Casual Parish Labourer (Outdoor)	7s. 6d. per week	- 16s. 6d.

(A) Has a wife and three children dependent upon him.

(B) Has one child dependent upon him (patient is a widower) and servant to take charge of child.

(C) Has a wife and three children dependent upon him.

(D) Has a wife and five children dependent upon him.

(E) Has a wife and five children dependent upon him.

(F) This patient and his brother are jointly responsible for the support of their mother and their home, in addition to themselves.

moreover were adequate for their requirements. The coal miner, on the other hand, gained financially by the change to the extent of 4s. a week. The cook had considerable difficulty in getting his situation as omnibus conductor, but the brewer's carman found employment as coachman almost at once. An ex-trooper in a hussar regiment and subsequently a driver of one of Messrs. Shoolbred's vans, he was thoroughly used to horses, and in addition he was a smart-looking man with a good character.

The coal miner (a young man of 22) had no difficulty in getting his job with the telephone company, this labour being unskilled. The cabinetmaker lives in the country with his people, who fortunately can afford to keep him. He is in good health at the present time and on the look out for some suitable work. The social and economic conditions then of these four men subsequent to their discharge have distinctly favoured their chances of remaining in good health. Turning now to the consideration of the six men who were the breadwinners of families, we see that four of them had unsuitable occupations, *viz.*, the wood sawyer, the Salvation Army officer, the workhouse attendant and the chaff cutter. The remaining two fortunately belonged to very good occupations, *viz.*, gardener and coachman. These two, though they both lost their situations when they left home to undergo treatment, very soon obtained regular work after their discharge, both being steady men with good characters and well qualified in their respective callings. In both instances they gained somewhat by their change of situation—an important matter, as they both had a wife and family and could not possibly have afforded to return to less remunerative employment, however suitable in other respects. As it is, their incomes of 32s. and 34s. a week, 66s. in all, are none too much for the maintenance of four adults and eight children. The fact that these two men had the worst clinical prognosis of these ten patients, and are at the present time in as good a position as any of them, illustrates the great value of a suitable occupation to a consumptive working man.

Two of the remaining four patients were also very fortunate in getting quite suitable work after their discharge, *viz.*, the Salvation Army officer and the workhouse attendant. In both cases their former employers retained their services but changed their work to something more advisable to their present conditions. As an insurance agent in the country, and an attendant upon paupers, for the most part in the workhouse gardens, both of these men returned to about as satisfactory conditions of work as could be wished for. In addition, they were both able to return to work as soon as was necessary, a matter of importance when there are wives and families to be supported. The wood sawyer was not so lucky, and his experience unfortunately is more typical of what often happens. With the help of club money, and a grant from the Charity Organisation Society, he spent the first few weeks after his discharge looking for a healthy kind of employment which would bring him in an income sufficient for his requirements. This would be at least 30s. per week. In spite of the active co-operation of the Charity Organisation Society, he failed to find work and was ultimately compelled to return to his original occupation in the sawmills. That he has remained at work for the past two years and maintained his health is evidence of what may be done by consumptives even under unfavourable conditions, when their disease has been pretty thoroughly arrested. The chaff cutter, an unskilled labourer, also found it impossible to obtain suitable employment. As yet he has done nothing more than casual outdoor work provided by the parish of Chelsea, such as road-sweeping, etc., and his income in consequence has dropped from 24s. a week to an average of 7s. 6d. a week. This loss of 16s. 6d. a week has been a very serious thing both for himself and his mother and brother with whom he lives, for the gross weekly income of this family is now inadequate for their requirements. This case, however, is the only one of the ten in which the change of employment has resulted in sufficient financial loss to reduce an individual or a family to a condition approaching poverty.

It is to be noted that the total income of these ten men after their discharge fell short of their total income before becoming tuberculous by 39s. 6d. per week. This is equivalent to an average weekly loss of nearly 4s. a head. Taking them together, there is no doubt that these ten men have been unusually fortunate in the way of obtaining suitable work after their discharge. When estimating the part played by various factors in their so far satisfactory after-histories, that of occupation must be given a prominent position.

2. *Dietetic Efficiency.*—The provision of a diet of high nutritive value is generally accepted as being one of the essentials for the successful treatment of consumption, but it is not so widely appreciated that for a consumptive to maintain his disease in a condition of arrest, he must continue to live at a high nutritive level for many months after his discharge from a sanatorium. The provision of adequate diets for working-class consumptives, frequently a difficulty, is a matter of the highest importance and one directly dependent upon the social and economic conditions to which they return after treatment. Ability to earn a living wage means as a rule the taking of a proper diet; in the same way any serious loss of the normal working or wage-earning capacity results in the diet becoming inefficient—a sure precursor of relapse. Any one familiar with the way in which the working classes live, will have noticed that food is considered by them to be the least essential item of what we may term unavoidable expenditure. Consequently, the first direction in which economy is effected is in the matter of diet. Certain forms of expenditure cannot be got rid of or even materially reduced, *e.g.*, on rent, fire, light, etc. These for the most part remain constant even with a falling income, but the expenditure upon food in any family is found (after allowing for the number in the family) to be directly in proportion to its total weekly income, the nutritive efficiency or inefficiency of the diet varying with the weekly sum available for food per head. From the point of view of the treatment of consumption, the composition of the diets taken by the working classes on

varying incomes, forms perhaps the most important aspect of social economy to inquire into. Inasmuch as the weekly sum available for food in any case depends upon the total income of the family, the number to be maintained upon it, the amount paid for rent, etc., and on other unavoidable expenditure, any inquiry upon this particular point must needs consider these various factors as well.

Method of Determining the Efficiency of Diets taken by the Working Classes.

The best method of determining the efficiency of diets taken by working-class families is to get a detailed return from the wife of all foods bought during a definite period, with a note as to their cost. Upon these data and with a knowledge of the number in the family, the average diet taken per head can be ascertained and its nutritive value calculated in terms of proteid, fat, carbo-hydrate and calories. This in practice is found to be a difficult matter unless the work can be personally supervised. Another method which gives a good approximate idea of the efficiency of a diet, and is one more easily carried out, is that of deducting from the total weekly income of the family the amounts spent weekly upon necessary expenditure, *e.g.*, rent, benefit clubs, light, coals, clothes, etc., thus leaving a maximum balance available for the purchase of food. This information, supplemented by a detailed description of an average daily menu, allows one to form a very fair estimate of its nutritive efficiency. Weekly budgets of income and expenditure compiled in this way give us, moreover, valuable information as to the minimum income required for the efficient maintenance of families of various sizes. This helps one to form an opinion as to the relative economic values of different occupations for married working men. It is upon these lines that the inquiry into the social conditions of these ten patients has been made and the weekly sum available for food in each case been determined. Table No. III. shows the weekly sum which was

available for food per head in each case before becoming tuberculous and after discharge. It also shows the amount which was available for the same purpose for their families during the enforced absence of the breadwinner. Before criticising these various sums it is necessary to establish some standard of dietetic efficiency for comparison, *viz.*, a sum representing the minimum expenditure which, in the case of the working classes, is found to represent the taking of a physiologically sound diet. To give all the data which have helped me to form such a standard would be too long a matter to enter into at the present moment. I may say here that the cost of the very cheap diets, physiologically efficient, which can be constructed by any one with a knowledge of the nutritive value and economics of different foods must not be taken as a standard. The working classes have not this special knowledge, and very often, in consequence, they take inadequate diets when the weekly sum available for food is quite large enough for the purchase of a dietary efficient in every respect, if the money were laid out to better advantage. The adequacy or inadequacy of a given sum for the purchase of food is then a relative matter depending upon the capabilities of the buyer. My own experience leads me to think that an expenditure per head of about 9d. per day, or 5s. per week, upon food represents an efficient diet, and that any sum appreciably less than this is usually associated with some degree of dietetic inefficiency, especially so in the case of the consumptive. One other point must be noted when dealing with this subject, *viz.*, the fallacy arising from people of different sex and age requiring varying amounts of food and consequently varying weekly sums for the purpose. This fallacy is largely got rid of by reducing all families to equivalents in terms of men, and for this purpose I have adopted the following table used by Rowntree in his work upon the efficiency of diets taken by the working classes in York (*Poverty, a Study of Town Life*).

The dietetic requirements of women and children may be stated as follows :—

Woman, equivalent to 0·8 of a man at moderate work.

Boy, 14 to 16	„	to 0·8	„	„	„
Girl, 14 to 16	„	to 0·7	„	„	„
Child, 10 to 13	„	to 0·6	„	„	„
„ 6 to 9	„	to 0·5	„	„	„
„ 2 to 5	„	to 0·4	„	„	„
„ under 2	„	to 0·3	„	„	„

On reference to Table No. III. it will be seen that three of the patients, Nos. 5, 9 and 10, before admission had less than 5s. a week to spend upon food, the exact sums being 3s., 3s. 6d. and 4s. 4d. These three men, then, had diets which were inadequate for their physiological requirements, and this no doubt was a contributory factor in the incidence of their disease. The large families of the two latter, in each case a wife and five children, accounted for their being in somewhat straitened circumstances, for their incomes of 27s. and 30s. 8d. per week were quite up to the average of the working man's wages. The third patient was a single man who kept himself, his mother, a brother and a sister upon 17s. a week, a sum obviously incompatible with physical efficiency. To arrest tuberculosis in these three patients, and to send them back to their old conditions of dietetic inefficiency, could only have ended in disaster. Fortunately for them, their economic conditions after discharge improved in each case, and to this fact they owe to a very large extent their immunity from relapse and the good health which they enjoy at the present time. The other seven patients had all quite an adequate weekly sum for the purchase of food when they became tuberculous, on an average 6s. to 7s. a week. Of more interest, perhaps, is an analysis of the budgets of these ten patients after their return to work, several of them to new employments. From Table No. III. it will be seen that the minimum sum which any of the patients had for the purchase of food was 4s. a week, though two of the others, *viz.*, those with the large families, had only 4s. 4d. and 4s. 10d. respectively. These last two sums were probably just sufficient, for the man with only 4s. 4d. was really better off than the figures indicate, since he had most of his meals at the workhouse. The

TABLE No. III.—SHOWING THE SIZE OF FAMILY, THE TOTAL WEEKLY INCOME AND THE WEEKLY SUM AVAILABLE FOR FOOD PER HEAD OF EACH CASE, BEFORE TREATMENT AND AFTER DISCHARGE; ALSO OF THE FAMILIES OF THE MARRIED MEN DURING THEIR ILLNESS.

No of Case.	At Date of Contracting Tuberculosis.					After Discharge			Of Family During Patient's Illness.		
	Family.		Family = to in Terms of Men	Total Income (Weekly).	Weekly Sum Available for Food Per Man.	Family = to in Terms of Men.	Total Income (Weekly).	Weekly Sum Available for Food Per Man.	Family = to in Terms of Men.	Total Income (Weekly).	Weekly Sum Available for Food Per Man.
	Adults.	Children									
1	2	1	2·1	30s.	10s. 6d.	2·1	23s. 6d.	7s.	1·1	—	Child and Nurse supported by the Salvation Army.
2	2	—	1·8	33s.	7s. 6d.	1·0	23s.	11s.	—	—	—
3	2	2	3·3	32s.	5s. to 6s.	3·6	30s.	5s. 4d.	2·3	16s.	3s. 2d.
4	1	—	1·0	36s.	10s.	1·0	30s.	10s.	—	—	—
5	2	2	2·8	17s.	3s.	1·0	21s.	7s.	—	—	—
6	2	3	3·0	30s.	6s.	3·0	34s.	7s.	—	—	Wife and Children supported by the Parish.
7	4	2	4·6	75s. 6d.	6s.	4·6	63s.	5s. 3d.	3·6	63s.	5s. 3d.
8	3	—	2·8	48s.	6s.	2·8	31s. 6d.	4s.	1·8	24s.	5s. to 6s.
9	2	5	4·4	27s.	3s. 6d.	4·4	32s.	4s. 10d.	3·4	20s.	2s. 4d.
10	2	5	3·4	30s. 8d.	4s. 4d.	3·4	30s. 8d.	4s. 4d.	2·4	29s.	6s. to 7s.

patient with only 4s. per week for food is the only one of the ten whose illness has resulted in himself and his family drifting into poverty. His inability to earn more than 7s. 6d. a week has reduced the weekly sum for the maintenance of himself, his mother and brother from 48s. to 31s. 6d., and the amount available for food per head from 6s. to 4s. This means that this patient since his discharge has often had an unsatisfactory diet, which does not improve his chance of regaining his former working capacity. With this single exception, then, all ten patients have incomes large enough to enable them, after defraying necessary current expenses, to provide themselves with physiological diets. The actual weekly sum available for the purpose varies from 5s. to 11s. a week. This, no doubt, has been a considerable factor in their success. It is of interest to note that two of the largest weekly sums available for food, *viz.*, 11s. and 7s., were obtained from the two smallest weekly incomes, *viz.*, 23s. and 21s. This is due to the men with these incomes being unmarried and with no one dependent upon them. It is a good illustration of the advantages in this respect enjoyed by consumptive single men compared with those with a wife and family.

The weekly sum available for the provision of food for the wives and families of the married men while under treatment is also of interest. In two instances (Cases Nos. 3 and 9) the loss of the income of the breadwinner resulted in families living under conditions approaching poverty, in spite of charitable assistance, the sums available for food per head being 3s. 2d. and 2s. 4d. per week. The significance of two growing families living for several months on these sums is obvious. This will be referred to again later, when discussing the financial resources of the ten patients in case of sickness. I may note here, that, but for help from the charitable, the condition of three of the married men's families would have been desperate during their absence; parochial relief or a life of absolute poverty must have been their only alternative.

The Financial Resources of the Ten Patients During Illness.

There still remains a most important aspect of the social economy of these patients for our consideration, *viz.*, the financial resources available for the maintenance of themselves and their families during their illness. In the next Table, No. IV., I show their several conditions in this respect, their incomes being noted under two heads, private resources, *viz.*, money from benefit clubs, etc., and charity, *viz.*, financial help from employers, private philanthropy, etc. The first thing that strikes one when looking through these records is the hopeless financial outlook that the majority of these patients had to face when overtaken by illness. In fact, when out of work, the total income available for the maintenance of ten men, five women and sixteen children was only 35s. a week. Only one of the five single men was in a club (this patient had only 10s. a week for twelve weeks) and they had no money saved, so that they had nothing whatever to fall back upon either for the payment for treatment or for their maintenance after discharge, whilst on the lookout for work. Only one of these five men also had a home which he could go to and live free of cost. The outlook of the five married men was no better. One of them had no financial resources at all, and of the other four, three had club money to the extent of 10s. a week and the fourth patient had 18s. a week (this last sum fell to 12s. a week at the end of ten weeks). Not one of these ten patients, then, was in a position to pay even the smallest fee for treatment, and in the case of the married men there was not one who could in the least way provide for his wife and family whilst in the sanatorium. In other words, but for the help that was given them either by charitable bodies such as the Charity Organisation Society, or by private philanthropy, none of them could have gone through their course of treatment without at the same time plunging their families into hopeless poverty. To avoid such a contingency all of them would have preferred to remain at work until utterly unfit to do anything, a course which could

only have meant a postponement of the inevitable condition of poverty and a hopeless case of consumption in the place of one with a fair prospect of recovery. The financial conditions

TABLE No. IV.—SHOWING THE FINANCIAL RESOURCES DURING ILLNESS OF THE TEN PATIENTS.

No. of Case.	Dependent upon Patient.	Financial Resources During Illness.	
		Private.	Charity.
e 1	1 child and a servant	Nil	Kept at Cottage Sanatorium by Salvation Army and child provided for.
d 2	Nil	Nil	£10 collected for patient's maintenance after discharge.
c 3	Wife and 2 children	10s. weekly from Sick Club	23s. weekly from the Charity Organisation Society.
c 4	Nil	Nil	17s. per week from the Charity Organisation Society.
a 5	Nil	Nil	Nil.
c 6	Wife and 3 children	10s. weekly from Sick Club	17s. per week from the Charity Organisation Society.
d 7	Nil	Nil, but was able to live at home	Nil.
c 8	Nil	Nil	17s. per week from the Charity Organisation Society.
f 9	Wife and 5 children	10s. weekly from Benefit Society	35s. weekly from private philanthropy.
b 10	Wife and 5 children	Average 15s. weekly from Benefit Society	22s. weekly from employers during 13 weeks of patient's illness.

a and b. These two patients were treated in the Special Open-Air Wards of the Sheffield Royal Infirmary.

c. Treated at the Mundesley Cottage Sanatorium at an inclusive fee of 17s. a week paid by the Charity Organisation Society of London.

d. Treated gratuitously at the Mundesley Sanatorium, being two of a series observed on an entirely meat-free diet.

e. Treated at the Mundesley Cottage Sanatorium for an inclusive fee of 17s. weekly, paid by the Salvation Army.

f. Treated in rooms in Mundesley Village.

of these patients are typical of those prevailing amongst a large majority of the working classes, but the good fortune which happily enabled them to meet their difficulties is un-

fortunately by no means so commonly experienced. Taking them seriatim, we see that the cost of treatment of Case No. 1 (17s. a week) and the maintenance of his child and servant were paid for by his employers, the Salvation Army. Case No. 2 was treated gratuitously and his sole capital, *viz.*, £10 subscribed for him on his discharge, sufficed to keep him until he found work. Case No. 3 had his cost of treatment and maintenance of his wife and two children (apart from 10s. a week which he received from a benefit club) defrayed throughout his illness by the Charity Organisation Society. This society also allowed him a guinea per week after his discharge while out of work. The cost of treatment of No. 4 was also entirely paid for by this Society. Case No. 5 was treated gratuitously at the Sheffield Royal Infirmary and found work immediately after his discharge. Case No. 6 was given 17s. a week by the Charity Organisation Society to pay for his treatment at the sanatorium cottage, and the parish meanwhile kept his wife and three children. The patient contributed 10s. a week received from his benefit club. The cost of treatment of Case No. 8 was also paid for by the Charity Organisation Society. Case No. 7 was treated gratuitously. The cost of treating Case No. 9, including the maintenance of his wife and five children during his six months' absence from home, was, with the exception of 10s. a week from a benefit club, defrayed entirely by a lady interested in the family. In the case of the tenth patient, also a man with a wife and five children, his employer gave him 22s. a week for thirteen weeks. In addition, he had 12s. to 18s. a week from his club and was treated gratuitously at the Sheffield Royal Infirmary. The very great benefit that has resulted from the well-directed charity in the case of these ten patients is clearly evidenced by their several conditions at the present day; but for the timely assistance they received, the life-histories, both of the men themselves and of their families, would doubtless give one a much less favourable view of the prospects of the consumptive working classes. Apart, however, from any question of philanthropy, the eco-

conomic soundness of the expense incurred in treating these patients and supporting meanwhile their wives and families is at all events up to the present time well shown by the incomes they are earning. Table No. V., which gives an approximate estimate of the cost of charity of treating these patients, and the statement of their present incomes, shows the economic soundness of the lines adopted in dealing with them. The figures show that the total cost of restoring the ten patients to health and to a working capacity, plus the cost of maintaining the wives and families of the married men, amounted to £259 19s. This sum was entirely subscribed by charity. In the cases in which some income was derived from the patient's own resources, such as club money, etc., the amount has been deducted from the cost of the patient's treatment. In return for this outlay of £259 19s. the ten men are now bringing in an income of £11 17s. 2d. a week, equivalent to an annual sum of over £600 a year. This return is a most satisfactory one. If this outlay had not been made, the annual income of these ten men would by now have fallen considerably, and several families doubtless would be at the present time dependent upon charity or the Poor Rate for their maintenance.

DETAILED DESCRIPTION OF THE LIFE-HISTORIES OF THE
FIFTEEN CONSUMPTIVE WORKING MEN WHOSE RE-
CORDS ARE LESS COMPLETE.

CASE I.¹—Age 30.

Occupation.—Professional vocalist.

Type of Disease.—Early (infiltration) disease of one lobe considerably arrested.

Duration of Disease.—Six months.

Number of Weeks under Treatment.—Thirteen.

This patient was treated at the Mundesley Cottage Sanatorium.

TABLE No. V.—SHOWING THE COST TO CHARITY OF RESTORING THE TEN MEN TO A WORKING CAPACITY, THE TOTAL COST INCLUDING THAT OF PATIENT'S TREATMENT AND OF THE MAINTENANCE MEANTIME, OF THOSE DEPENDENT ON HIM. (*Any Income derived from Club money has been deducted from the cost of any patient who received it*).

No. of Case.	Cost of Treatment and Maintenance of Families.		Total Cost to Charity.	Weekly Incomes Earned by Patients at the Present Time.	
	Patient's Treatment.	Maintenance of Family.			
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	Cost of 12 weeks' treatment at 17s. per week . . . 10 4 0	30s. per week for 13 weeks from the Salvation Army . 19 10 0 Collected for patient for his maintenance whilst he was looking for work . . . 10 0 0 Total from the C.O.S. for the period during which the patient was out of work . 22 1 0	29 14 0	As Insurance Agent for Salvation Army . . . 1 3 6	
2	Cost of 11 weeks' treatment at 20s. per week . . . 11 0 0	Nil	21 0 0	As Coachman . . . 1 5 0	
3	Cost of 14 weeks' treatment at 17s. per week . . . 11 18 0	Nil	33 19 0	As Wood Sawyer . . . 1 10 0	
4	Cost of 13 weeks' treatment at 17s. per week . . . 11 1 0	Nil	11 1 0	As Restaurant Cook . 1 15 0	
5	Cost of 16 weeks' treatment at 20s. per week . . . 16 0 0	Nil	16 0 0	As Engineer . . . 1 6 0	
6	Cost of 15 weeks' treatment at 17s. per week . . . 12 15 0	10s. per week for 15 weeks paid by the Parish . . . 7 10 0	20 5 0	As Coachman . . . 1 14 0	
7	Cost of 10 weeks' treatment at 20s. per week . . . 10 0 0	Nil	10 0 0	(Out of Employment) . 0 0 0 As Casual Outdoor	
8	Cost of 12 weeks' treatment at 17s. per week . . . 10 4 0	Nil	10 4 0	Labourer, etc. . . . 0 7 6	
9	Cost of 46 weeks' treatment at 25s. per week . . . 57 10 0	10s. per week for 46 weeks from private philanthropy . 23 0 0	80 10 0	As Gardener . . . 1 12 0 As Workhouse	
10	Cost of 13 weeks' treatment at 20s. per week . . . 13 0 0	22s. per week for 13 weeks from patient's employers . 14 6 0	27 6 0	Infirmiry Attendant. 1 10 8	
	£163 12 0	£96 7 0	£259 19 0	£12 3 8	

£12 3s. 8d. × 52 gives the total amount of wages earned during a year, viz., £633 10s. 8d.

CONDITION ON ADMISSION.

Fever.—Nil.*Digestion.*—Normal.*General Health.*—Very fair.*Weight.*—10 stones 8 lb.*Relation to Highest Known**Weight.*— - 12 lb.*Lung Disease.*— ———*Normal Working Capacity.*—*Family.*—Unmarried. No one dependent upon him.*Home Conditions.*—Lived in lodgings in Clapham, where he had his own bedroom and shared a sitting-room in common with six other people.*Wages.*—Forty-five shillings a week throughout the year, with the exception of two or three weeks when no performances were given.*Work.*—As a singer in a troupe of minstrels his daily routine was roughly as follows: Rises at 10.30. No work in the morning; takes part in afternoon performances from 3 to 5 P.M., and evening performances from 8 to 10.30. In addition there would be rehearsals. The work itself is by no means arduous.

CONDITION ON DISCHARGE.

Nil.

Normal.

{ Very good. Walking 10
| miles daily.

11 stones 4 lb.

- 2 lb.

Completely arrested.

Completely restored.

Satisfactory.

More or less the same.

More or less the same.

After-History.

April, 1903.—On his discharge this patient at once returned to the troupe of minstrels and remained with them until they disbanded in the spring of 1904. His daily routine was the same as it was before he came down to Mundesley, and has already been detailed.

March, 1904.—In March, 1904, he wrote as follows: "It is now nearly eleven months since I left Mundesley and I have been keeping fairly well since then. As you will remember, I was at —— Hall and am still there with the —— Minstrels, and as we are doing ten performances a week it gives me very little time out of doors: that is the one drawback to the stage profession. I get out as much as possible and always have my windows open as much as the weather will permit. I was living in lodgings when I returned to London, and as I continued to do so well I have got married, as one receives so much more home comforts. My appetite is still good."

Summer, 1904.—During the summer of 1904 he and another singer lived in various seaside resorts and secured a comfortable living by singing at hotels, piers, on the beach, etc. On the average he sang about four hours a day and lived an open-air life the whole time. He visited Mundesley amongst other places. His health at that time was excellent and the lung disease apparently completely arrested.

November, 1904.—In November, 1904, this patient was visited in his home in Balham. He was living in three rooms with his wife and child. His health was still excellent, and he had worked continuously since his discharge from Mundesley eighteen months previously. The minstrel troupe for whom he sang were now disbanded, but the patient joined a concert party which gave him employment throughout the winter. This patient declined to give any statement of his income and expenditure, but he was obviously quite comfortably off, and able to do his work as well as before his illness.

The following is a sample of his daily dietary :—

Breakfast.—Egg and bacon, bread, butter and tea.

Dinner.—Meat, vegetables, bread, pudding.

Tea.—Tea, bread, butter.

Supper.—Cold meat, vegetables, pickles, bread.

May, 1905.—A report at this date showed that he was still in very good health, and at work.¹

Commentary.

This case has been an unqualified success and is likely to remain so. He started with the great advantage of having only a small lesion ; in addition he was a man with a good constitution and fine physique. His work too was by no means hard, and brought him a wage sufficient to ensure thoroughly satisfactory social conditions, *viz.*, a comfortable home, good food, etc.

CASE II.²—Age 18.

Occupation.—Grocer's assistant.

Type of Disease.—Recent infiltration of two lobes of the right lung.

Duration of Disease.—Four months.

Number of Weeks under Treatment.—Sixteen.

CONDITION ON ADMISSION.

Fever.—98 A.M. to 100 P.M.

Digestion.—Normal.

General Health.—Very poor, anæmic, emaciated, etc.

Weight.—9 stones 4 lb.

Relation to Highest Known

Weight.— - 12 lb.

Lung Disease.— —

CONDITION ON DISCHARGE.

Nil.

Normal.

Completely restored.

10 stones 12 lb.

+ 10 lb.

{ Very considerably arrested,
but some moist sounds
still audible at the apex
of the lower lobe.

¹ February, 1906.—He is in excellent health and at work.

² This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Normal Working Capacity.—

Completely restored.

Family.—Unmarried, no one dependent upon him. Lived at home.

Home Conditions.—Comfortable and satisfactory.

Wages.—20s. a week.

{ Unknown, but sufficient for his maintenance.

Work.—The ordinary routine work of an assistant in a city grocer's shop.

Various employments in the Colonies, *vide* "After-History".

After-History.

September, 1899.—After leaving the infirmary he spent a month at the Southport Convalescent Home, where his health still further improved. It is of interest now to note that while in this institution he was an object of considerable interest to the members of the Southport medical profession, as an example of what were the results of the then new treatment of consumption, and that he was interviewed by the local press.

November, 1899.—He was enabled, through the generosity of a former employer, to emigrate to Australia. On landing there he took on all sorts of odd jobs, paying his way wherever he went and not settling to any special work for any length of time.

June, 1900.—In June, 1900, he wrote home saying that he was still in excellent health, and was keeping himself. Three months later he again reported himself as having gained a lot of weight and feeling very well indeed.

November, 1901.—He wrote from Auckland, in New Zealand: "This is the best place I have been in yet, and I have seen four of the colonies. I have had all kinds of work since I came out here, but never seem to rest. I stay in one place until I get enough money to take me to another, and thus

have a trip. I am pleased to say my health is quite up to the mark. I am working here in a restaurant as second cook ; we have plenty of work but that does not hurt me if I get plenty of good food, which I do. You will be surprised to hear of me cooking, but out here a man has to be afraid of nothing. No matter where I go I always take on anything in the way of work, so I always get on well."

September, 1903.—In September, 1903, he wrote home as follows : " You ask me if I was tired of cooking ; well, not exactly, still I thought a change would do me good, and it was another experience. You know I am very fond of adventures, although one reason why I left off cooking was more for my health than anything else. Some of these kitchens are very unhealthy, so I took the fresh air for a change. I always seem better moving from place to place than when I stay long in one place, and I have become very fond of travelling. I suppose I have travelled a thousand miles since last Christmas, and now I am on my way down to the South Island to have a look round there. You speak about hardships, they appear so at the time, afterwards one manages to see the funny side. There is one good point about them, and that is one appreciates a good meal and a bed when one gets back into civilisation again, and I think it all goes to the making of a man. I myself do not regret one single thing that I have passed through so far, although taking things right through in the colonies it is either a feast or a famine, and there is no happy medium to be found at all. At the present time I am in the best of health and spirits."

March, 1904.—He wrote at some length from Christ Church, New Zealand, in answer to a letter asking for an account of himself since he left England in 1899. I give this letter *in extenso* : " I will try as near as possible to let you know what you require. Tasmania (to which place the patient first travelled after leaving England) would have suited my health very well indeed, but as there was no work to be got there I went to Sydney and was there for eighteen months. At first I did clerk's work which did not suit me,

too much confinement. I then tried pick and shovel which started a blood rush again, then the stables again, also stewarding on boats, waiter in hotels, in fact almost everything, but the climate and everything else was against me. I then came on to New Zealand and have been cooking sometimes in hotels, and at other times in camps of various kinds. My weight for the last four years has been 10 stones 4 lb. as regular as possible. I have not had any hæmorrhage for two years now and at present I am in the best of health. I eat and drink anything that comes first, smoke and behave as moderately as I can. I always sleep with my windows open if possible and also take physical exercise every night and morning in a moderate form.¹ I must say that the more I travel the better I feel. With regard to your question as to the possibilities of the Colonies for consumptives it is a mistake to send any one out from England unless they have a trade, and even then they would require a good letter of introduction, otherwise they have to take on any kind of work they can get which in most cases is not suitable. The conditions of life in the Colonies are vitally different from home, and it requires a person with extraordinary spirits to pull through, that is in the case of a man seeking a place which will benefit his health. He may get a place which will suit his health well enough, but the work and wages won't, and *vice versa*. Then if he has not much capital he will begin to pinch his stomach to make both ends meet, which again is detrimental. My advice is, unless one has the best of prospects, to stay at home and get suitable employment there. I don't wish to hinder any one from coming out because to my mind nearly all New Zealand climates agree wonderfully well with me, but it is in the making of a living that a man is handicapped. I have not received any financial help from anywhere since I came out but have depended entirely upon myself for my maintenance, neither have I been examined by any doctor since I left

¹ These are I imagine the breathing exercises he was taught when in the Royal Infirmary.—N. D. B.

England. I have tried to tell you as plain as possible as to my doings and trust you will understand it.

“Thanking you for your kind attention in the past,

“I remain,

“Yours respectfully,

“E. W. T——, In the best of health.”

March, 1905.—This patient was reported by his friends as being in good health and still at work in New Zealand.¹

Commentary.

The life-history of this patient since he was discharged from the infirmary some four and a half years ago is distinctly encouraging and has several points of interest. On admission, a typical case of recent and active pulmonary tuberculosis, but with a good constitution and unimpaired recuperative power, he reacted characteristically to treatment.

The sixteen weeks spent in hospital and convalescent home, though it completely restored his general health, failed to arrest the disease thoroughly, so that his future welfare depended almost entirely upon the life and work to which he returned. Being young, unmarried and with no one dependent upon him, he was able to accept the offer of a former employer to send him abroad, and this emigration, in my opinion, has been a very material factor in his success. The experiences of this patient in the Colonies are instructive, and clearly show that it is of very doubtful benefit to send out consumptives, unless they have some definite situation to step into on arrival. In the case of the patient now under consideration, the chances are that he would have come to grief if he had not been a man of considerable resource and character though but young in years, only eighteen.

As an assistant in a city grocer's shop he had not learnt a trade which was likely to be of much value to him, though his earlier training as stable-boy in a gentleman's household was likely to stand him in good stead. This patient, though

¹ February, 1906.—The last report recently received from this patient was most satisfactory.

not particularly skilled in any suitable calling, was, however, adaptable, and what in slang terms one calls "all there". He was able to make the best of his chances and had moreover the advantage of being, as things go, a fairly slight case of consumption. As an example of the practical side of this patient's character the following incident is perhaps worth recording. The patients in the special open-air wards of the Sheffield Royal Infirmary were for the most part advanced cases, with appetites of the worst possible description, who required constant encouragement to eat as heartily as if they were really hungry.

This exhortation to eat was not lost on this particular patient, and he concluded that the more food he consumed the more likely he was to be speedily cured of his disease. This is a fallacy, one may remark, into which many of our own profession were not proof against falling. This patient then, in addition to his own rations, frequently ate a good deal of the food left by his neighbours before it was cleared away. A severe bilious attack during which it was found that he was excreting 1,000 grains of urea daily—just double the amount excreted by a normal person—first drew the attention of Mr. Chapman and myself to the probable ill effects on normal body metabolism and general health which might be associated with prolonged very high feeding, and led us to commence our experimental inquiry into the question of dietetics and metabolism in the consumptive.

CASE III.¹—Age 27.

Occupation.—Typefounder.

Type of Disease.—Extensive disease of upper and lower lobes of the right lung, with excavation at the apex and infiltration of the left lower lobe.

Duration of Disease.—Three years, with periods of more or less complete arrest.

Number of Weeks under Treatment.—Twenty-one.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

Fever.—99 A.M. to 100 P.M.

Digestion.—Poor.

General Health.—Poor.

Weight.—8 stones 5 lb.

Relation to Highest Known

Weight.— - 18 lb.

Lung Disease.— ———

Normal Working Capacity.—
———

Family.—Unmarried, no one dependent upon him. Lived at home.

Home Conditions.—Very satisfactory.

Wages.—33s. a week.

Work.—"When he first became tuberculous his work consisted of rubbing the type on a large file which creates a great deal of fine dust. Latterly he had been a typecaster first on a hand machine and then on a steam machine. The metal used is a mixture of lead, tin, copper and antimony." On admission the patient had been a typesetter for fourteen years. The work is obviously unhealthy and not at all suitable for consumptives.

CONDITION ON DISCHARGE.

Nil.

Normal.

Very good.

9 stones 9 lb.

Equal to.

{ Much improved but incom-
pletely arrested, moist
sounds being audible.

Very nearly restored.

Very satisfactory.

{ 1. As a traveller in the
drapery business, 15s. a
week with expenses.
2. As a tram conductor, 28s.
weekly.

1. Commercial traveller for a drapery business. His working hours were from 9 A.M. to 5 P.M., and the work itself consisted of going about the country round about Sheffield getting orders. He walked his rounds and had to carry about heavy bags of samples, and his new occupation for this reason was not altogether satisfactory, although it took him out of doors most of the day.
2. Conductor on a Sheffield tram car. This work was entirely satisfactory.

After-History.

March, 1900.—On discharge from the infirmary he commenced to travel for the drapery business and continued this work in good health for six months when he had an attack of hæmoptysis. He then gave up work and resumed the open-air treatment at home, at the same time attending the Royal Infirmary as an out-patient. He was fortunately able to continue this treatment for another eight months.

June, 1901.—In June, 1901, his disease appeared to be quite arrested and his general health again completely restored. During these eight months he had worked for an examination in order to qualify for a post of sanitary inspector, since he thought that such work would be better than travelling. The course of study was entirely book-work, so it interfered very little with his treatment.

December, 1901.—He sent the following report of himself: "My weight is 8 stones 4 lb. (this was 1 lb. less than when he was admitted to the infirmary two years previously, so he had lost 1 stone 5 lb. since his discharge). My appetite is moderate, and I have no indigestion, vomiting or night-sweats. Expectoration is very little, about one teaspoonful daily. I get up at 8 A.M., have breakfast, go for a walk from 9.30 to 12. Have dinner at 1 P.M., rest till tea, usually lying down, and then go for another walk. I have had one or two slight attacks of hæmoptysis since Easter, but did not spit up much blood. Shortly after the attack at Easter I had my sputum examined at the Sheffield Laboratory, and the doctor there reported that he could find no bacilli. A week's observations showed that the temperature and morning pulse rate were normal".

January, 1902.—He was visited by Mr. Chapman in Sheffield. He was then looking distinctly too thin, his weight being only 8 stones 5 lb., but his general health was very fair. Examination of his chest showed considerable retraction of his right lung, with a dry cavity at the apex and considerable emphysematous change in the left lung. There were no

signs of activity, the disease appearing to be quite arrested. His chief symptom was dyspnœa on exertion. His average diet for the past two years had been as follows :—

Breakfast, 8 A.M.—Egg and bacon, bread and butter.

Dinner, 1 P.M.—Meat (about half-pound uncooked), potatoes, etc., pudding and half-pint of milk.

Tea.—Three slices of bread with butter and jam.

Supper.—Porridge, with half-pint of milk.

He was at this time working as a tram conductor, having recently obtained a situation.

January, 1903.—He wrote: "I am in very good health. I was thoroughly examined by my doctor a week ago and he could not find a trace of active disease. My cough has almost left me and I have scarcely any expectoration. My appetite has improved very much and my weight is stationary. I am still working as a tram conductor and am on duty ten hours a day."

This patient was lost sight of for two years, but a note sent on chance to the Sheffield Tramway Co., in January, 1905, resulted in his whereabouts being ascertained.

January, 1905.—He was sent a series of questions in regard to his health and work during the past two years up to the present time, and I think it is perhaps best to give the questions and the answers I received, just as he wrote them.

Q.—What sort of health have you enjoyed since you started work on the tramway two years ago?

A.—Fairly good.

Q.—Have you had any relapses of any kind during the past two years?

A.—Yes. I have been off two or three odd weeks and I was off for four weeks last summer, two of which I spent in Scarborough from which I derived great benefit. I have had two slight attacks of hæmorrhage since starting on the trams; the first was in August, 1902, and the second a few weeks ago.

Q.—How is your health at the present time?

A.—I am keeping very fairly well, but at times I am very short of breath.

Q.—Give an account of your everyday routine, hours of work, meals, etc.

A.—Up to the end of December last I worked morning and afternoon alternately. The morning term begins between 4 to 6 A.M. and ends between 2 and 3 P.M., and the evening term begins between 2 and 3 P.M. and ends between 12.30 and 1.15 P.M. Until last March we had to take our meals while working on the cars, but since then we have been granted reliefs for meals, from forty to sixty minutes being allowed. Since December I have been working both morning and afternoon about five hours in each term with an interval of three and a half hours between each term.

Q.—What is your present salary?

A.—28s. a week.

Q.—Had you any difficulty in getting the situation on the tramway?

A.—No.

Q.—What is your opinion on this sort of work for consumptives?

A.—With careful attention I think it is very good.

Q.—What other kinds of work do you know of that would be suitable for a consumptive?

A.—No answer given.

Q.—Are you still single and living at home, or are you married or in lodgings?

A.—I married in March, 1903.

Q.—Give a general idea of your meals.

A.—As I am now working I have an early breakfast at 5.30 of bread and butter, with occasional honey and Plasmon cocoa; light lunch about 10; dinner at 12.30, meat and vegetables and milk pudding; light tea about 6; supper at 9.30 of bread and butter and Plasmon cocoa.

Q.—What in your opinion has been the chief reason of your successfully keeping your health?

A.—Good food and attention and a life in the open air.

Q.—To what extent do you still carry out the treatment we taught you in the infirmary some five years ago?

A.—Beyond having the bedroom window open I am sorry to confess that I do not carry out anything that you told me to do.

Q.—Do you know of any consumptive who has done so well as you have?

A.—No. I have known two or three who were employed on the tramway but it proved too much for them. I do not know anything of their home life so cannot say whether or not they could obtain all that was necessary for them.

This patient also added the following interesting note: "I once obtained a situation as a window cleaner, but hauling the ladders about proved too much for me as I had a slight attack of hæmorrhage. I earned 18s. a week for the first week, 19s. for the second week and subsequently 20s. a week. I remained at this work for four months."

May, 1905.—He wrote: "I am glad to tell you that I am still keeping well and at my work. I have got an easier post and am steadily increasing my weight."¹

Commentary.

This patient has proved a greater success in every respect than appeared probable when he was first admitted to the Sheffield Royal Infirmary in 1899, for the long duration and the extensive character of his lung disease, and the existence of a cavity with a history of several severe attacks of hæmoptysis, were all factors against him. These disadvantages were, however, compensated by his being in a better social position than most of the other patients. He was unmarried, had a comfortable home and his family could keep him when he was unable to work. Under these circumstances he was able to carry out his treatment at home during the eight months following his breakdown, and to this as much as anything else he probably owed his very encouraging position recorded in 1902. Under less favourable social and financial conditions he would most likely have relapsed

¹ February, 1906.—He had an attack of hæmoptysis at Christmas. He is now back at work again and in very fair health.

and died within a year of his discharge. With regard to employment, his first attempt as a commercial traveller was not a success, the value of the open-air life being much discounted by the necessity of his carrying heavy parcels. His work as a window cleaner also was a failure for the same reason. It will be noted that both these employments brought on hæmoptysis. As a tram conductor, though he exchanged country air for town air, fog, etc., the life was still an open-air one and was free of the heavy manual labour entailed by the travelling. This patient has now been continuously at work for the past three and a half years, and is certainly in much better health than when he first came under my observation in 1899. This patient's history is a good example of how much can sometimes be done even for advanced cases of consumption. In a sanatorium where the patients treated are limited to early cases, such a case as his would have to be refused admission.

CASE IV¹.—Age 43.

Occupation.—Razor-blade forger and grinder.

Type of Disease.—Infiltration of the apex of left lung, with acute dry pleurisy.

Duration of Disease.—Indefinite: probably a few months.

Number of Weeks under Treatment.—Twelve.

CONDITION ON ADMISSION.	CONDITION ON DISCHARGE.
<i>Fever.</i> —101 A.M. to 104 P.M.	Nil.
<i>Digestion.</i> —Normal.	Normal.
<i>General Health.</i> —Very poor.	Excellent.
<i>Weight.</i> —7 stones 10 lb.	9 stones 5 lb.
<i>Relation to Highest Known Weight.</i> — - 24 lb.	Equal to.
<i>Lung Disease.</i> — ———	Completely arrested.
<i>Normal Working Capacity.</i> — ———	Completely restored.
<i>Family.</i> —Unmarried. No one dependent upon him.	

¹ This patient was treated at the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Home Conditions. — Unsatisfactory. Lived in lodgings in a poor part of the city.

Wages.—30s. to 40s. weekly.

20s. to 25s. weekly.

Work.—Metal grinding is one of the most unhealthy employments to be found in Sheffield. Tuberculosis is very prevalent amongst those who are engaged at this work. The men are paid by the piece and their wages vary with the quality of the work they can do.

The same work but shorter hours.

After-History.

August, 1899.—After discharge he returned to his occupation of razor-blade grinder, but only worked four hours a day.

February, 1900.—He reported himself at the out-patient department. He was still only working four hours a day and was in good health. He had no cough, had a good appetite and felt perfectly well. Subsequent attempts to trace this patient have failed.

Commentary.

So little is known of the after-history of this patient that his case calls for but little comment. The chief point of interest lies in the fact that the experiment of his going back to an unhealthy trade but with shortened hours proved a success (as far as is known). An unmarried man with no one to support but himself, he could live on a comparatively small sum, certainly 20s. per week ; and if a skilled workman, quite a short working day would suffice to bring him in this sum. As a matter of fact, I have good reason for stating that he was a particularly good man at his trade. It was some months after his discharge when coming one night

through the slums that lie between the Sheffield Medical School and the Royal Infirmary I noticed this patient somewhat the worse for drink amongst about as undesirable-looking a party of loafers as can be seen even in Sheffield. With an eye to my after-histories I saw the man safely *en route* for his own home. Some weeks later he called on me at the out-patient department at the infirmary, bringing with him a specimen of his handiwork as a memento of our last meeting. His gift consisted of two razors, the blades of which were engraved with my name enclosed in a well-designed fancy border, the whole work being very neatly executed and showing considerable skill.

CASE V.¹—Age 26.

Occupation.—Upholsterer.

Type of Disease.—Extensive chronic disease of the upper and lower lobes of the right lung, considerably arrested as the result of previous treatment of four months at a sanatorium.

Number of Weeks in Cottage Sanatorium.—Six.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—Nil.

Nil.

Digestion.—Fair.

Normal.

General Health.—Poor.

Very fair.

Weight.—8 stones 10 lb.

8 stones 10 lb.

Relation to Highest Known

*Weight.*²—Equal to.

Equal to.

Lung Disease.— —

{ Extensive retracting lesions
of the right lung ; disease
much improved, but in-
completely arrested.

Normal Working Capacity.—

Incompletely arrested, but fit
for light work.

Family.—Married, with a wife
and one child dependent
upon him.

¹This patient was treated in the Mundesley Cottage Sanatorium.

²He gained 14 lb. at the sanatorium he was at before he came to Mundesley.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

<i>Home Conditions.</i> —Unknown, but probably satisfactory.	Unknown, but probably satisfactory.
<i>Wages.</i> —Average 20s. per week.	Average 20s. per week.
<i>Work.</i> —Upholsterer's work is not very healthy, being indoors and often very dusty.	Did no work for a year, afterwards upholsterer.

After-History.

April, 1903.—Returned to his home in a country town and looked for some light employment, meanwhile living on his club money. He did not succeed in getting any work, and did nothing all the summer except a little gardening.

November, 1903.—He was not quite so well, and obtained admission to a convalescent home in Bournemouth, where he stayed till March 1904.

March, 1904.—He was then in pretty good health and resumed his work as an upholsterer. His work was somewhat irregular, though when he had a good job he made from 30s. to 40s. a week, but on the average he did not make much more than 20s. a week.

January, 1905.—He was reported as still at work as an upholsterer. He was looking very fragile, but he said that he did not feel tired after a hard day's work. His temperature was normal. He had recently had rather a big job at a house three miles from his home, and had walked there and back every day and worked at the house all day as well, which shows that his health at that date must have been very fair.

During 1904 his wife also contracted tuberculosis.

May, 1905.—He is still in fair health and at work.¹

Note as to Financial Resources of Patient during Illness.—This man paid 2s. 9d. a month to a sick club, and during his illness received 12s. a week for twelve months and afterwards 6s. a week. The patient's sanatorium fees were paid for throughout his illness out of a sum raised for the purpose in his neighbourhood, and in addition 5s. a week was allowed to

¹ February, 1906.—I saw this patient a few days ago. He is in very good health, and doing a full day's work.—N. D. B.

his wife out of the same fund. Thus the total income for patient's wife was 17s. weekly; out of this 6s. per week was paid for rent, leaving 11s. a week for food and the household expenses of his wife and child—quite an adequate sum.

Commentary.

This is another instance of a man with incompletely arrested disease returning to what we must consider to be unsuitable work for a consumptive, having failed to find anything better. When at Mundesley he had talked of taking up gardening or some other open-air employment, but being a married man with a child it did not seem at all probable that he would do so. A man with his responsibilities cannot afford to start learning a new employment at which, for some time at least, he would earn but a small weekly wage. When the necessity arose for his doing work he, as one expected, at once returned to the trade at which he was best able to earn a living. That he has maintained his health under his present conditions is most satisfactory.

CASE VI.¹—Age 29.

Occupation.—Steam-hammer driver.

Type of Disease.—Extensive active disease of two lobes of both right and left lungs with clearing up pleural effusion (L. Pleura).

Duration of Disease.—Six months.

Number of Weeks under Treatment.—Forty-two in the infirmary and a further sixteen weeks at home.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—99 A.M. to 102 P.M.

Nil.

Digestion.—Poor.

Normal.

General Health.—Bad, night sweats, emaciation, etc.

Completely restored.

Weight.—8 stones 10 lb.

10 stones 5 lb.

Relation to Highest Known

Weight before Illness.—

— 24 lb.

— 1 lb.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

Lung Disease.— ———

Normal Working Capacity.—
———

Family.—Unmarried, no one dependent upon him.
Lived at home.

Home Conditions.—Comfortable and very satisfactory.

Wages.—50s. to 60s. a week.

Work.—Steam-hammer driver. The work of a steam-hammer driver in a big metal shop is of a very heavy character and is an occupation to which no consumptive could ever think of returning. The hammers are used to shape masses of molten metal into ingots, bars, etc., the metal being carried in large tongs by the men direct from the furnaces to the hammer. The shops in which this is done are large, very hot and very draughty. Such are my recollections of this work as I saw it when living in Sheffield. The following are the comments of this patient's brother on the

CONDITION ON DISCHARGE.

{ Disease very considerably though still incompletely arrested, there being some scattered moist sounds audible in both lungs on cough.

Apparently completely restored.

35s. per week.

Steward of Working Man's Club.

The patient sent the following description of this work: "It consists of looking after the house, keeping it clean, etc., and the only help I receive is that of a charwoman who comes to scrub twice a week. In addition to this household work I am on my legs all day serving members of the club. Some of the work is rather heavy, *e.g.*, moving barrels of beer into position in the bar. My hours are long, and when I first began the club opened at 10 A.M. and did not close till 2 or 3 A.M. on every day of the week: latterly, however,

CONDITION ON ADMISSION.

work: "It is very hot and the men work in what are called spells, *viz.*, so long on and so long off. After they have finished a spell and are still perspiring freely they seek the coldest place in the works to get ready for their next turn. With regard to the draught, that varies, if the wind is blowing under the hammer the heat from the iron is blown full in the face and makes it very hot. On the other hand if it is blowing towards the back the front part of the body is hot and the back cold. The men have no fixed time to start or give up work. They have so much to do in the day and the work usually takes from ten to twelve hours to finish."

CONDITION ON DISCHARGE.

the house has closed at midnight. The club itself is nearly always stuffy, and I have been quite unable to persuade the members to have the windows open."

After-History.

July, 1900.—On leaving the infirmary in July, 1900, he went to his home in the country, a few miles outside Sheffield, and continued the "open-air" treatment for another four months with considerable benefit.

November, 1900.—In November, 1900, he recommenced work as steward of the Working Man's Club in the village in which he lived. The club itself was but a short distance from his own home.

December, 1901.—At this date, twelve months after his return to work, he wrote: "I have been quite well ever since

I left the infirmary and I feel as strong as I ever did in my life. I have gained another 14 lb. since my discharge, my weight being now 11 stones 4 lb. As steward of the club I have plenty of running about and am working seven days in the week."

January, 1902.—In January, 1902, this patient was visited by Mr. Chapman in his own home. At this date he was in excellent health, weighing 11 stones 3 lb., and if anything rather too fat. His temperature and pulse were normal, the average of a week's observations being 98 A.M. and 98·4 P.M., with a morning pulse rate of 68. He had neither cough, expectoration nor appreciable dyspnœa on exertion. Examination of his chest indicated complete arrest of the disease with considerable compensatory changes, and it was difficult to find evidence of much of the previously existing lesions. His average diet since he had commenced work was as follows:—

7.30 A.M.—Porridge.

9.30 A.M.—Egg with tea.

11.30.—Two eggs with milk.

1.30.—Ordinary meat dinner, with vegetables and rice pudding.

6.30.—Tea, bread and butter with some extra, *e.g.*, herring, sausage, etc.

11 P.M.—Bread and cheese.

August, 1902.—He reported himself as being in splendid health, hard at work and weighing 11 stones 6 lb.

April, 1903.—He was again visited by Mr. Chapman at his home. He was then to all appearances perfectly well and doing a hard day's work with perfect ease, and he thought nothing of lifting heavy barrels of beer into position in the bar. Physical examination revealed no evidence of lung disease except some impairment of resonance and compensatory emphysema.

December, 1903.—In December he wrote as follows: "I am very sorry to tell you that I am not going on very well. I went to Chester races last May and there I caught a severe

cold standing on the course over the shoe-tops in wet and dirt. It was also raining all day. I worked until August when the club gave me a month's holiday, so I went to Brigg for fishing, thinking that the fresh air would do me good. I only stayed there a week, as it was raining every day. I caught another cold there, and started sweating at night and losing weight and this has continued till now. I have not worked since August and my brother, who has been out of work, is managing the club business for me. I have been taking Angier's emulsion, but it does me very little good. I feel well in the daytime, but as soon as I get to bed I start coughing which keeps me awake all night. I think I should soon be well again if the weather would alter; it is so damp and foggy here." Two months later he wrote, saying: "I have called in medical advice and the doctor, after examining my chest, says that my left lung is as sound as a bell but the right is breaking out again. He says I ought to go away for a short time, that I am not so bad as he thought, and should soon be well again."

April, 1904.—From this date he steadily lost ground and died in April, 1904.

Commentary.

This patient's record, though it has to be classed among the ultimate failures, is none the less of a distinctly encouraging character when all the circumstances of his case are considered. When admitted to the infirmary he was desperately ill, to all appearances a hopeless case, with but a month or two to live. It was in fact only after some three or four months spent lying in bed by the open window of his ward that he began to make any appreciable improvement. Ten months was a very long time for one patient to occupy a bed, but when he left with disease well arrested and general health thoroughly restored, his long stay seemed to have been well justified. Clinically speaking, he was a great success; in fact during the six years I have been treating consumption

I cannot recall a more striking recovery than that made by this patient. The life of a consumptive who has suffered from very extensive disease is always a precarious one, and when in addition he is a working man earning his own living the chances of a long life are but small. On clinical grounds, then, one did not anticipate a very satisfactory after-history. Contrary to one's expectation, however, he did remarkably well, and when after two and a half years of continued work and good health he appeared to all intents and purposes a sound man, there seemed a good prospect of his achieving the improbable and proving a cure. The occupation he went back to after his discharge was by no means ideal for a consumptive. His hours were very long and some of the work required considerable physical effort, *e.g.*, moving barrels of beer. On the other hand, his home and social conditions generally were excellent; his wages, too, were ample for his requirements, his family, with whom he lived, being in quite comfortable circumstances. For his first two and three-quarter years after discharge this patient was an unqualified success, but one always realised the possibilities of his breaking down again, and the improbability of his pulling through a definite relapse. Whether or not the cause he assigned for his breakdown was the correct one, *viz.*, a chill caught by standing in the rain at Chester races, it is impossible to tell; if it was so, it is to be regretted that he should have run any risk for an object which was not in the least way associated with his work or essential for his welfare.

CASE VII.¹—Age 18.

Occupation.—Clerk.

Type of Disease.—Chronic progressive disease of upper and lower lobes of both lungs.

Duration of Disease.—Seventeen months.

Number of Weeks under Treatment.—Fifteen.

¹This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

Fever.—98·4 A.M. to 100 P.M.

Digestion.—Normal.

General Health.—Poor.

Weight.—6 stones 5 lb.

Relation to Highest Known

Weight.— - 20 lb.

Lung Disease.— —

Normal Working Capacity.—

—

Family.—Unmarried, no one dependent upon him. Lived at home.

Home Conditions.—Quite satisfactory.

Wages.—25s. a week.

Work.—His work consisted of the ordinary routine of a city clerk. His hours were long, *viz.*, ten hours daily, and the office in which he worked was overcrowded and badly ventilated. It was moreover next to the engine-room, which made it very stuffy in the summer.

CONDITION ON DISCHARGE.

Nil.

Normal.

Good.

7 stones 11 lb.

Equal to.

{ Very incompletely arrested,
moist sounds being fairly
numerous in both lungs.

Imperfectly restored, but fit for light work.

Quite satisfactory.

{ 1. As tax collector, 25s.
a week.
2. As clerk, 27s. a week.

1. Income-tax collector ; this work consisted of collecting money from house to house in the suburbs of Sheffield. His working hours were 9 A.M. to 6.30 P.M., and on the average he walked from five to six miles a day.
2. Ledger clerk. This was the routine work of a clerk in an office.

After-History.

February, 1900.—On discharge from the Sheffield Infirmary in February, he went into the country for a few weeks, returning home in March.

April, 1900.—He recommenced work as income-tax collector. He lived at home, and his social conditions generally

were satisfactory. His new work suited him very well, since it took him out of doors all day, and in addition he spent his evenings in the fine weather in the public parks.

February, 1901.—He was reported to us by another patient as “apparently quite well and still at work as tax collector, his district for work being a healthy one and his home comfortable”.

April, 1901.—Still found him doing well now twelve months after commencing work.

July, 1901.—He had an attack of hæmoptysis lasting several days, during which he calculated he lost some ten to fifteen ounces of blood. This hæmoptysis was brought on by an injudicious bicycle ride of some thirty miles in the hilly districts of Derbyshire. This ride, quite unconnected with his work, in fact only a Saturday’s outing, was the first one he had had for three years. As a result of his illness, which kept him indoors for over a fortnight, he lost his employment as tax collector.

August, 1901.—At the latter end of this month he again resumed work. He had failed in his efforts to get some kind of outdoor employment, so took a post as ledger clerk. This meant office work of seven and a half hours a day, but the office was fairly airy and well ventilated, and the work was not heavy. It was, however, three miles from his own home, and though he could use a train to take him part of the way, he had on the whole to do four to five miles walking a day. He continued to be out of doors as much as possible, and spent his evenings as previously in the parks. This new routine suited him better than might have been expected.

November, 1901.—He wrote saying that he was keeping well, and in the same month another old patient wrote saying that he was looking very well and had grown considerably since leaving the Royal Infirmary. His weight at this time was 8 stones 10 lb., being 13 lb. above his weight on discharge in February, 1900. This was satisfactory, and indicated that he was probably holding his own.

December, 1901.—He was visited by Mr. Chapman in Shef-

field. He was then found to be enjoying very fair general health and to be quite fit for his work. He had lost some weight, however, being now 8 stones 2 lb., and he looked obviously below weight. The lung condition had not altered very much during the past eighteen months, though what change there was was for the worse, the disease being slowly progressive and of the fibroid and emphysematous type. His temperature was normal, *viz.*, 98·4 at 7 A.M. and 98·6 at 7 P.M., and his morning pulse rate averaged from 75 to 80. He had very little cough but distinctly more dyspnoea than formerly. His appetite was not quite so good as it used to be but his digestion remained normal. The following had been his approximate diet since resuming work in April, 1900:—

7.45 A.M.—Milk, half-pint.

Breakfast, 8 A.M.—Cocoa made with water, two rounds of bread and butter, and an egg or bacon and egg.

Dinner, 12.—Beef or mutton, potatoes, tart, etc., and cocoa or water.

Tea, 6.30 P.M.—Four or five rounds of bread with butter and jam, cake, etc., and an egg.

Supper, 10 P.M.—Bread and suet and a pint of milk.

This diet was quite satisfactory. Examination of his blood at this date gave the following result: Hæmoglobin, 75 per cent.; red corpuscles, 4,720,000. This gives a blood decimal of ·79, which would compare favourably with the blood decimals of many normal people engaged in the same work as this patient. In view of his being below his weight, he was advised to increase his daily allowance of milk to three pints, to have his cocoa made with milk instead of water, and to have meat with his tea.

March, 1902.—He wrote, saying he was still feeling very well and was at work. His temperature was still normal, but his average morning pulse rate had increased to 90. He had not gained any weight in spite of the extra food, being still 8 stones 2 lb., and he had suffered a good deal with constipation during the past few months, which he attributed to the extra milk he had been taking.

February, 1903.—He was again visited by Mr. Chapman, three years having now elapsed since his discharge from the Royal Infirmary. His general condition was now found to be materially changed for the worse. He looked somewhat emaciated and his weight had fallen to 7 stones 10 lb. or 14 lb. below what it had been in September, 1901. His appetite had become much worse, being especially bad for breakfast, and his diet had in consequence become much less satisfactory. Moreover he had reduced his allowance of milk again to a pint daily. The disease in the lungs had slowly progressed, the left chest now being considerably retracted and adventitious sounds audible over the great part of both lungs, the physical signs suggesting advanced fibroid changes with emphysema. He was still at his work in the office, and in fact had not missed a day's work since commencing there in August, 1901.

June, 1903.—He definitely relapsed and in November, 1903, he died.

Commentary.

This patient was handicapped from the beginning by the extensive character of his lung disease, and although his social and economic conditions after discharge were as satisfactory as could be desired, and tended to prolong his life, his prognosis on clinical grounds was all along a very unfavourable one. When admitted the patient was one whose constitution had obviously been sapped and permanently damaged by eighteen months of slowly progressive disease, an example of what I term a case who has lost his natural powers of resistance and recuperation. Under these circumstances any clinical result other than partial arrest of the disease and incomplete restoration of general health and capacity for work was most improbable, and such was his actual condition when discharged. The prospects of a breadwinner of a family returning in such a state of health to unfavourable conditions of work and a poor home would be absolutely hopeless, but the almost ideal nature of the em-

ployment this patient returned to after discharge, *viz.*, tax collector, coupled with his comfortable home and freedom from any financial anxiety, led one to hope that after all he might do fairly well in spite of his clinical disadvantages. These hopes were fully realised, since the end of fourteen months' continuous work found him if anything in better health than when he left the infirmary. At this promising stage of his career he, no doubt tempted by his continued good health, made his big mistake, for the bicycle ride, with its resulting hæmoptysis, lost him his employment as tax collector, and at the same time destroyed whatever chance he had hitherto possessed of being permanently restored to health. The work he returned to after convalescence from the hæmoptysis, *viz.*, ledger clerk, was in many ways less suited to him than his former post as tax collector, and although he remained at it for nearly two years, in fact till within a short time of his death, he was throughout gradually losing ground. But for his unfortunate bicycle ride, his working career might well have been prolonged for a good many years, and when we take into consideration his condition when first admitted, I think that three years at full work in itself represents something better than absolute failure. The incident of the attack of hæmoptysis and its cause serves to remind one of the necessity of warning patients with extensive lesions in a condition of arrest of the special risk attaching to any sudden physical exertion.

I have seen on more than one occasion a useful and fairly healthy life prematurely ended by an attack of hæmoptysis brought on by some heedless and quite unnecessary act, *e.g.*, lifting a heavy gardening water can, swinging a child in a swing, etc.

CASE VIII.¹—Age 35.

Occupation.—Silversmith.

Type of Disease.—Very extensive chronic disease of all lobes of both lungs with excavation at the right apex, associ-

¹This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

ated with considerable degree of retraction (fibroid change) and emphysema.

Duration of Disease.—Two and a half years.

Period under Treatment.—Thirty-four weeks in hospital, and a further six weeks in Derbyshire.

CONDITION ON ADMISSION.

Fever.—99 A.M. to 100 P.M.

Digestion.—Bad, chronic dyspeptic.

General Health.—Very poor.

Weight.—7 stones 8 lb.

Relation to Highest Known

Weight.— - 20 lb.

Lung Disease.— ———

Normal Working Capacity.—
———

Family.—He was a married man with a wife and three or four children.

Home Conditions.—Comfortable and satisfactory.

Wages.—35s. a week.

Work.—Silversmith. The work of a silversmith consists of fashioning silver goods out of the rough metal, after which they are passed on to the silver spinner, or more skilled workman, for finishing. This work is done in factories where many men are employed at the same time; it is thus not very suitable employment for a consumptive.

CONDITION ON DISCHARGE.

Nil.

Better.

Considerably improved.

8 stones 11 lb.

- 3 lb.

{ Very incomplete arrest, although improved.

Very imperfectly restored.

Traveller for cigars. This work consisted of selling cigars in various public-houses in Sheffield and the surrounding district. On the average he walked from five to six miles a day, and his working hours were from 6 A.M. to 7 P.M. He had to carry two heavy bags of samples which he found a considerable burden.

After-History.

April, 1900.—He recommenced work as a traveller in cigars, his wife meanwhile running a small hardware shop which she had started when he left home for the infirmary.

May, 1900.—"He was feeling very well indeed, and eating three times as much as he had done in the infirmary." His weight was 9 stones, being a gain of 3 lb. since discharge.

September, 1900.—He wrote as follows: "Dear Sir,—I write according to promise to let you know how we are all getting on. R., D. and F. are all gone to the happy hunting-ground, but I will let you know how the rest are doing—those that are left of us. I hear that N. is very bad, also J., B., S. and W. B. has gone to Canada and was quite well the last I heard of him. I had a letter from T. in New Zealand; he is in the best of health, never felt better in his life. He has gained a lot more in weight but not in pocket. He is making his way to Sydney. I had R. at my house the other week. He is quite well and working with a telephone company, a good open-air job. P. is looking first-rate. He is in charge of the lunatics working in the fields. H. is also in good health. He is going to give up the van-driving for a job in the bakehouse. I should have thought the driving was much better for him; still he is all right now. F. gets as fat as a pig and has quite lost his cough, and I hear that T., who used to work at the type foundry, has a job travelling for drapery. I think this about completes the list. I am pleased to say I keep fairly well myself. I am travelling for cigars and work country districts chiefly. I feel all right if I don't do too much walking, but some days I have to do six or seven miles, and I can tell you I feel about done up when I get home. However I feel better again next morning. I have been trying to get a job out of Sheffield altogether, but have not succeeded yet.

"Yours very gratefully,

"A."

February, 1901.—He wrote : “ I am fairly well, and some days when I am in the country and have had an easy day I feel as well as I have ever felt in my life, but if I overdo it I am knocked up the next day and not a bit of good. My weight is 8 stones 10 lb. and my surroundings are healthy. I am still travelling for cigars, but find it pretty hard work on some journeys, but am all right when I have not much to carry, and I can then scarcely realise that I have been so bad as I was.”

July, 1901.—By this time the daily exercise had become rather too much for him, so he tried to get a horse and cart but failed, his custom not being large enough to pay for this luxury. In consequence he only went travelling three days in the week, resting at home the other days. He now breakfasted in bed, as he found that he could take a better meal this way than if he got up to it.

October, 1901.—He wrote : “ I received your letter with pamphlets¹ this morning. It makes me wish to be one of your patients again—how different the surroundings and scenery at the infirmary ! Still I was very happy while I was there and have many pleasant recollections of the place. You ask for news of H., F., T., R., T. and B. Well, I regret to say that H., F., G. and B. are all dead. S. is a steward at a Conservative club, and all right. R. was quite well when I saw him last, courting strong ; I think he is contemplating marriage. I gave him a bit of advice, *viz.*, ‘ Don’t,’ but doubt if he will follow it. P. is doing very well indeed. I went to see him last Sunday, as we make a rule of seeing one another and having a chat every three or four months. I am fairly well, and I feel as well as I ever did when I have not to do any walking, but if I have an extra heavy day I am bad for a week afterwards.”

January, 1902.—He was visited by Mr. Chapman. His general health then was fairly good, but he was a typical chronic, a good deal emaciated, with a marked stoop and

¹ Pamphlet contained views of the sanatorium I was at that date in charge of.—N. D. B.

suffering from considerable dyspnœa on exertion. His temperature was normal but his disease had evidently been slowly progressing since his discharge. He was doing very little travelling on account of the fatigue and dyspnœa, which resulted from his walking any distance, but was helping in the shop. His diet for the past two years had been roughly as follows :—

Breakfast.—Always an unsatisfactory meal. Bread and butter and a cup of tea.

Dinner.—Meat, potatoes, no pudding.

Tea.—Bread and butter with some extra, such as herring, jam, etc.

Supper.—Fried fish and potatoes, bread and butter and a glass of beer.

At 9.30 he took a glass of milk.

This diet was probably inadequate. His home was one of a row of small cottages on a very steep hill containing four rooms, two on each floor. One of these rooms on the ground floor had been converted into a shop, the other one being used as a kitchen. Upstairs his wife and himself shared one room and his three children the other. The whole house was clean, but not particularly airy, but the patient always slept with his bedroom window open. The family seemed to be in fairly comfortable circumstances.

May, 1902.—He wrote: “I have not been quite so well lately and have practically given up the travelling. I don’t stay indoors any more than I can help but just sit outside and gaze silently on the few surviving cabbages in the back garden. Still I am feeling better for this rest and I hope I may be ready for the fray again before very long. The weather here has been very foggy; you could scarce see your hand before your face half the week. Still I stick it pretty well. When I cannot see the cabbages I pass my time in silent reflection, there is enough light for that or to smoke by. You may even venture to spit by it if you are well acquainted with the surroundings. I merely mention these facts to show you what it is like here; but this fog seems to have no effect upon me

except upon my sputum, and this is like liquid blacking. I have an idea that my temperature gets much higher when I try the travelling by the way I feel next day."

October, 1902.—His condition was unchanged and he had done no further travelling.

February, 1903.—He was again visited by Mr. Chapman. His condition then was very much the same as when he was visited a year previously. The lung condition was little altered though perhaps there was more emphysema resulting in increased dyspnœa. His general health however was evidently failing, and he was quite unfit to do anything but sit about and occasionally serve in the shop. His weight was 7 stones 8 lb., being the same as when first admitted to the Royal Infirmary three years before. He was taking very much the same diet as when last visited; he had tried taking extra milk but discontinued it owing to its "stuffing him up," by which he meant indigestion. It was noticed on this occasion that his house was more stuffy than formerly, all the windows being closed.

November, 1903.—This patient kept about till 13th November, 1903, when he became much worse and died within a week.

Commentary.

This patient before his illness was in comfortable circumstances, with an income of 35s. a week on which to support himself, his wife and three children. He was not, however, at all provident and lived up to his income, so that he found himself without any financial resources when forced to give up work. The weekly sum which he had remaining after payment of his current expenditure of house, food, etc., he would have been wise to have at least partly invested in a benefit club; his spare money, however, went chiefly in alcohol, which he was addicted to taking in excess. After his infection with tuberculosis he continued to do a full day's work for two and a half years before seeking medical advice, and by then his disease had become so extensive and his con-

stitution so damaged that anything more than "incomplete arrest" was most improbable even with the best treatment. After eight months in the sanatorium wards at the Royal Infirmary he was discharged very considerably improved, though with very imperfectly arrested disease and with general health and working capacity by no means fully restored. During his long stay in the infirmary he had of course no income whatever, and his home and family were kept together by his wife, who converted her front sitting-room into a hardware shop and managed to make a living out of it. But for his wife thus taking his place as the breadwinner, the patient himself could not have remained in the infirmary anything like as long as eight months, and the family would have been dependent upon the Poor Rate. When discharged from the infirmary it is probable that the patient could for a time at least have earned his full wage of 35s. a week by returning to his original trade of silversmith. This work, however, was not very suitable for him, so he gave it up and looked about for something better; the fact that his wife was now making a fair income out of the shop gave him a chance of doing this. As a traveller his life was spent largely out of doors, and for eighteen months the profits of the small business he managed to get together were an appreciable addition to his wife's income from the shop. This life of commercial travelling, though probably suitable enough for a patient with completely arrested disease and thoroughly restored general health, was too hard for a man as much damaged as this patient was, the amount of walking burdened with bags of samples making the life a fairly hard one. It is of interest to note that though this patient's custom was principally amongst the public-house proprietors, he kept clear of alcohol and in this respect at least was a very much better man for his stay in the infirmary.

The last eighteen months of his life-history consisted of a hopeless fight against slowly progressive failure of health and strength, a fact which the patient himself, who was some-

what of a philosopher, fully realised. This man's life was undoubtedly prolonged by his treatment, which was about all that could possibly have been expected.

CASE IX.¹—Age 33.

Occupation.—Boxmaker.

Type of Disease.—Fairly extensive disease of both lobes of the left lung, considerably arrested.

Duration of Disease.—Nine months.

Number of Weeks under Treatment.—Thirteen.

CONDITION ON ADMISSION.

Fever.—98 A.M. to 100 P.M.

Digestion.—Normal.

General Health.—Very fair,

Weight.—10 stones 4 lb.

Relation to Highest Known

Weight.— - 20 lb.

Lung Disease.— ———

Normal Working Capacity.—

———

Family.—Widower with three children.

Home Conditions.—Not very comfortable.

Wages.—35s. a week.

Work. — Boxmaker. He worked in a factory where they made packing-cases, tubs, etc. It was fairly hard indoor work.

CONDITION ON DISCHARGE.

Nil.

Normal.

Quite restored.

11 stones 2 lb.

+ 4 lbs.

{ Very much improved, but
arrest still incomplete,
moist sounds being aud-
ible in the lower lobe.

Probably completely re-
stored.

Unknown ; probably 25s.
weekly.

Driver of a van. He was the driver of a van which delivered goods made by a firm of provision dealers. This work was both light and out of doors.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

After-History.

February, 1900.—This patient, after discharge from the infirmary, in addition to changing his employment removed from his old home in a crowded quarter of the city into the suburbs.

July, 1900.—This patient was in good health and at the same work.

September, 1900.—His employers offered him a place in their bakehouse at a higher wage than he received as a van driver which the patient accepted. He was then in good health.

February, 1901.—He relapsed and died in July of the same year.

Commentary.

This patient, in my opinion, almost certainly threw away an excellent chance of permanent restoration to health and working capacity by his exchanging the very suitable occupation of a van driver for work in a bakehouse. Discharged in a very satisfactory condition he continued to do very well during the seven months he worked as a van driver, though the wages he earned were relatively small and barely sufficient for the support of himself and his three young children; moreover, being a widower, his income was probably not spent to the best advantage. Tempted by a higher wage which promised him greater comfort he gave up the van driving and became assistant in a bakehouse. Four months of this brought about a relapse from which he never recovered, so that his increase of income was very dearly bought.

CASE X.¹—Age 18.

Occupation.—Cabinetmaker's assistant.

Type of Disease.—Chronic disease of upper and lower lobes of the left lung, with excavation at the apex and recent infiltration of the right upper lobe.

Duration of Disease.—Eighteen months.

Number of Weeks under Treatment.—Nineteen.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

CONDITION ON ADMISSION.

Fever.—98 A.M. to 101 P.M.

Digestion.—Bad, vomiting frequent.

General Health.—Very bad. Night sweats, emaciation, etc.

Weight.—6 stones 6 lb.

Relation to Highest Known Weight.— - 18 lb.

Lung Disease.— —

Normal Working Capacity.—

Family.—Lived at home. No one dependent upon him.

Home Conditions.—Not very satisfactory, his family being rather poor.

Wages.—12s. per week.

Work.—He had been three years in a cabinetmaker's shop and the room in which he worked was small and very dusty. The windows were always kept closed and being badly lighted there was always gas burning.

CONDITION ON DISCHARGE.

Nil.

Normal.

Excellent.

7 stones 10 lb.

Equal to.

{ Very much improved, moist sounds being audible only over the cavity.

Very largely restored.

Hall porter at the Sheffield Medical School. A fair-sized airy building in the higher part of Sheffield. His work there is perhaps best described in his own words: "It is not very hard. I go at 8 A.M. and finish at 6 P.M. with one hour off at midday for dinner. In the morning I have to light two fires, wash the front and dust—about two hours' work in all. During the day until about 4 o'clock I am in the hall office attending to inquiries, etc. After 4 I have to get rooms ready for classes and to sweep up.

After-History.

January, 1900.—On discharge he gave up the cabinet-making and commenced work at the Sheffield Medical School.

September, 1900.—Another patient wrote of him as being much fatter and in excellent health, having quite lost his cough.

February, 1901.—After twelve months at this work he wrote saying that he was feeling very fairly well, but that he had a tendency to catch cold when it was foggy. Since leaving the infirmary he had not missed a single day's work, but during that period he had lost some 10 lb. in weight. A week's temperature observations at this date showed that he had some elevation of temperature in the evening. His average daily record ranged from 97 A.M. to 99·5 P.M.

April, 1901.—He relapsed and was readmitted to the Royal Infirmary. The disease was then found to have considerably extended, and he died a few months later.

Commentary.

In this case the disease was of such an extensive nature that its permanent arrest was very improbable save under exceptionally favourable conditions after discharge. This patient, though he left in a very fair state of health, and returned to an occupation which, as city work goes, was healthy, failed to hold his own more than a year. The patient's home was a poor one, and his family not being in a position to keep him at home doing nothing, it was necessary for him to earn an income as soon as possible after his discharge. His duties at the Medical School were light, and the post there would, I have no doubt, have proved a most satisfactory one to a patient with but early and slight lung disease. This patient's failure must be attributed to his clinical condition on admission being such that only prolonged treatment and a life subsequently spent under very favourable conditions was likely to be of any lasting benefit.

CASE XI.¹—Age 32.

Occupation.—Porter at Covent Garden Market.

Type of Disease.—Extensive disease of two lobes of the right lung, considerably arrested as the result of eight weeks' previous treatment.

Duration of Disease.—Six months.

Number of Weeks under Treatment at Mundesley.—Thirteen.

CONDITION ON ADMISSION.

Fever.—Nil.

Digestion.—Poor (flatulent dyspepsia).

General Health.—Very fair.

Weight.—12 stones.

*Relation to Highest Known Weight.*²—Equal to.

Lung Disease.— ———

Normal Working Capacity.—
———

Family.—The patient was a married man with a wife and two children.

Home Conditions.—Patient and his family occupied two rooms in a fair-sized house in the north of London. The accommodation was small for four people, but the rooms were of fair size and comfortably furnished. The couple were hard-working, intelligent people.

CONDITION ON DISCHARGE.

Nil.

Normal.

{ Very largely restored. Walk-
ing twelve miles daily.
12 stones.

Equal to.

{ Arrest not quite complete, a
few moist sounds still to
be heard.

Imperfectly restored.

¹ This patient was treated at the Mundesley Cottage Sanatorium.

² This patient had gained 14 lb. during his two months' treatment at Worthing before coming to Mundesley.

CONDITION ON ADMISSION.

Wages.—30s. a week for two months in the year, 25s. a week for the remainder.

CONDITION ON DISCHARGE.

25s. a week, never more.

Work.—His work consisted of unloading market gardeners' vans, which meant carrying heavy cases and baskets. He worked some thirteen hours a day, with a good deal of night duty. The work was distinctly hard. His average hours would be from 3 A.M. to 2 P.M.

He returned to the same work.

After-History.

May, 1903.—After discharge he returned home and resumed work as a Covent Garden porter.

August, 1903.—He wrote: "I am very pleased to tell you that I have enjoyed good health since I left Mundesley, and I have been at work ever since I came home. It has been a hard season in the market, but I can assure you I do not feel any effects of my previous illness. I eat well and take plenty of milk, and I carry on the open-air treatment as much as possible."

March, 1904.—He wrote: "I am pleased to tell you that I have been going on very well up to a few days ago, but just at the present time I am not very well. I had a bad cough come on last October, so I went to the Royal Free Hospital where I was sounded and found all right, but the doctor gave me some medicine for the cough. I have been all right since then until this week, but have had to give in and lay up. I have a very bad cough, which is worse at nights, and I am also very short of breath. My meals since coming home have been more or less as follows:—

"About 2 A.M.—Bread and milk and porridge.

„ 4 A.M.—Bread and butter and tea, with egg, bacon or fish.

“ About 9 A.M.—A similar meal.

„ 1.30 P.M. (dinner).—Meat, vegetables and bread, with milk or suet pudding on Sundays only.

„ 5 P.M. (before going to bed).—A cup of tea and a slice of bread and butter.”

This patient's diet was satisfactory.

After this date the patient did no work, and in May he went into the University College Hospital, where he died the following June.

Note as to the Financial Resources of this Patient and his Family during Illness.

I am indebted to the Charity Organisation Society for this information :—

“ The patient and his family received £5 from the Royal Artillery Charities, £5 from the Samaritan Fund of a hospital (I don't know which), and £2 from the Society for the Relief of Distress. In this way his 17s. a week, the fee for treatment at the Mundesley Cottage Sanatorium, was paid. The wife had 5s. 5d. a week from his club during a part of the time he was away, and his employers allowed her 5s. a week ; when the club money ceased an appeal was made on their behalf for a grant from a certain sum of money we hold at the Central Office for the families of breadwinners who are in sanatoria. From this fund a grant of £5 was made, so that an allowance was continued at the rate of 10s. a week. This sum the wife supplemented by earning a few shillings herself.”

Commentary.

This case requires very little comment. It is an example of a man with somewhat extensive and incompletely arrested disease returning to an occupation of a most undesirable description. The life of a Covent Garden porter is hard even for a strong man, and from the day the patient left Mundesley and returned to this work his relapse was almost certainly only a question of time. There were two alternatives which offered this patient a chance of a successful after-history, viz.,

a return to his old work after his disease had been completely arrested—this would have meant at least another six months' treatment—or the obtaining of some light occupation. The patient unfortunately could not adopt either of these alternatives.

CASE XII.¹—Age 22.

Occupation.—Mechanic in a cycle manufactory.

Type of Disease.—Chronic disease of both lobes of the left lung and of the lower lobe of the right lung: all considerably arrested.

Duration of Disease.—Six months.

Number of Weeks under Treatment.—Twelve.

CONDITION ON ADMISSION.

Fever.—Practically nil.

Digestion.—Normal.

General Health.—Very poor.

Weight.—7 stones 2 lb.

Relation to Highest Known

Weight.— - 12 lb.

Lung Disease.— ———

Normal Working Capacity.—
———

Family.—Married. With a wife and one child.

Home Conditions.—Very unsatisfactory; the three of them sleeping in one small attic.

Wages.—20s. a week.

Work.—The ordinary routine work of a mechanic in a large cycle factory.

CONDITION ON DISCHARGE.

Nil.

Normal.

Good.

9 stones.

+ 14 lb.

{ Very much improved, moist sounds being limited to a few râles after cough at the left apex.

Very largely restored.

20s. a week.

The same as before admission to the infirmary.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

After-History.

February, 1900.—After discharge he resumed his work in the cycle factory, since he thought that he could do better at this than at any other kind of work.

September, 1900.—We heard from another old patient that he was not doing well.

February, 1901.—He was visited by an old patient who sent the following report: "I followed S. to three addresses and eventually found him in the workhouse infirmary. He was looking very thin and pale, and I had to look twice to make sure it was him; the result, I think, of bad work, bad food and bad surroundings."

April, 1901.—He came up to the out-patient department of the Royal Infirmary. The disease then had become general in both lungs and he died three months later.

Commentary.

This patient on clinical grounds had a better prognosis than many of the other patients. His disease, which was of a very slowly progressive type, yielded rapidly to treatment and was very considerably arrested when he was discharged. His general health also when he left the infirmary was excellent; in short, he was a very good clinical result, and under anything like favourable conditions there seemed every chance of his doing very well after discharge. Unfortunately he could not be persuaded to change his employment, which was obviously unsuitable for him. Owing to his three months' absence in the infirmary his wife and child had fallen into a condition of poverty which made it imperative for him to get to work immediately upon his return home, and the man's own familiar trade naturally offered a readier market and better wages than any other kind of employment.

With wife and child depending upon him, his earnings of 20s. per week were quite inadequate to provide him with the diet and home conditions required by a case of arrested tuberculosis working under unhealthy conditions. As a

matter of fact he only worked three months before he relapsed, but his failure under these circumstances was no more than could be expected. This patient's history is a good example of how in the case of the working man a good case, clinically speaking, may prove an ultimate failure, unless the social and economic conditions returned to after discharge are favourable.

CASE XIII.¹—Age 18.

Occupation.—Hawker.

Type of Disease.—Fairly extensive disease of both lobes of the left lung, and recent infiltration of the right lower lobe.

Duration of Disease.—Six months.

Number of Weeks under Treatment.—Twenty-eight.

CONDITION ON ADMISSION.

CONDITION ON DISCHARGE.

Fever.—99 A.M. to 100 P.M.

Nil.

Digestion.—Very bad, vomiting constant.

Much improved.

General Health.—Very fair.

Good.

Weight.—6 stones 9 lb.

7 stones 11 lb.

Relation to Highest Known

Weight.— - 14 lb.

+ 2 lb.

Lung Disease.— ———

{ Very much improved but
still incompletely arrested.

Normal Working Capacity.—

Incompletely restored but quite fit for light work.

Family.—Unmarried, lived at home with his widowed mother and several other children who had no income other than the patient's weekly earnings.

Home Conditions.—Were of the worst possible character, the family living in conditions of great poverty.

Wages.—Unknown.

Work.—As a hawker this patient had work which kept him out of doors most of the day, and provided he could get a living-wage at it his employment was suitable.

¹ This patient was treated in the open-air wards of the Sheffield Royal Infirmary.

After-History.

April, 1900.—After his return home he very soon broke down again.

September, 1900.—He was reported as being at home, very ill, and not having done any work since leaving the infirmary.

February, 1901.—A similar report was received.

Summer, 1901.—During June, July and a part of August, 1901, he was an inmate of the workhouse infirmary but apparently did not derive much benefit from his stay there for in August, 1901, he was visited by another old patient who reported him as looking very thin and weak and quite unable to be up and about. His temperature was ranging between 99 and 101 with a pulse of 90 to 100.

January, 1902.—He was visited by Mr. Chapman. He was found bedridden in a dirty room which was extremely stuffy, every window being closed and the cracks between the sashes covered with sand bags. The patient and his mother with the rest of the family were on the parish and were living in great poverty. His diet since returning home had been somewhat as follows :—

Breakfast.—Tea, bread and butter.

Dinner.—Scraps of beef, potatoes, and Yorkshire pudding.

Tea.—Tea and cake.

Supper.—Fried fish and potato chips.

Clinically this patient was in a hopeless condition and he died a few months later.

Commentary.

This patient's record, though very disappointing and to some extent discouraging, has its value for it shows what a hopeless matter it is to benefit permanently the consumptive poorer classes if they must needs return to conditions of bad hygiene, inadequate food and general poverty. Clinically this patient was no worse, in fact very distinctly better, than others who did well after discharge, but his inability to earn a living wage and his lack of financial resources resulted in his living

under conditions in which it was idle to expect a case of incompletely arrested consumption to maintain his health, much less to improve. Even if his disease had been completely arrested the probabilities are that he would have broken down almost as soon as he did, since being the sole breadwinner of his widowed mother and her family he was bound to return to his home in the slums immediately on discharge. Financial assistance to his family and suitable employment, *viz.*, one at which he could earn a good living wage, might well have turned the scale in the patient's favour.

CASE XIV.¹—Age 23.

Occupation.—Silver spinner.

Type of Disease.—Extensive disease of both lobes of the left lung considerably arrested.

Duration of Disease.—Twelve months.

Number of Weeks under Treatment.—Twenty-six. Fourteen weeks in the "open-air" wards and twelve at home as an out-patient.

CONDITION ON ADMISSION.	CONDITION ON DISCHARGE.
<i>Fever.</i> —Nil.	Nil.
<i>Digestion.</i> —Poor.	Normal.
<i>General Health.</i> —Bad, anæmic, night sweats.	Completely restored.
<i>Weight.</i> —7 stones 3 lb.	9 stones 1 lb.
<i>Relation to Highest Known Weight.</i> — - 23 lb.	+ 3 lb.
<i>Lung Disease.</i> — —	Arrest apparently complete.
<i>Normal Working Capacity.</i> — —	Completely restored.
<i>Family.</i> —Unmarried, no one dependent upon him.	
<i>Home Conditions.</i> —Unknown.	
<i>Wages.</i> —40s. to 60s. a week.	Unknown.

¹This patient was treated in the open-air wards of the Sheffield Royal Infirmary.



THE ROYAL INFIRMARY, SHEFFIELD.

SHELTER AND EXERCISING GROUND OF THE CONSUMPTIVE PATIENTS (1899).

CONDITION ON ADMISSION.

Work.—Silver spinner. A silver spinner does the finishing work of articles made by the silversmith. He does the better-class work, such as putting fancy patterns on teapots, etc.; he uses a lathe for much of this work. Men engaged in this branch of the trade are skilled workmen, and except for it keeping them indoors, the work itself is better than most of the metal industries.

CONDITION ON DISCHARGE.

In Canada. 1. Work on a farm. 2. Work in an hotel.

After-History.

June, 1900.—He emigrated to Halifax, Canada, and during the week after landing he had an attack of appendicitis which pulled him down a good deal. When convalescent from this he obtained work on a farm where he had to work fourteen hours a day. After eight weeks of good health at this work he had an attack of hæmoptysis and went into a sanatorium, but was discharged after a few weeks as fit for work. After leaving the sanatorium he gave up the farm work and found employment in an hotel; but after working there for four months he had another attack of hæmoptysis and went into hospital. On his discharge, three weeks later, he decided to return to England as he thought that the intense cold of the country was bad for him. The thermometer stood at 30 degrees below zero the day he left.

June, 1901.—He arrived in England and on his way home to Sheffield he had another attack of hæmoptysis in the train.

February, 1902.—Not having done well at home he was readmitted to the sanatorium wards at the Sheffield Royal Infirmary. His condition at that time was distinctly un-

favourable. He was very anæmic and obviously emaciated, having lost 14 lb. since discharge the year previously. In the lungs the disease had extended though still limited to one lung, and there was now a definite excavation at the apex. Under treatment he made very slow progress; but at the end of five months his temperature was normal and he had sufficiently improved to be out in the grounds. Early in September he commenced to have a succession of hæmorrhages, aneurismal in character, and died on 11th September, during a severe attack.

The following is the *post mortem* report: Right lung quite free from tubercle, some emphysema at the anterior margin: Left lung, pleura much thickened and lung itself much retracted, enclosing a cavity about the size of a hen's egg, with several smaller communicating cavities surrounded by fibrous tissue. In the wall of the larger cavity was a vessel with aneurismal dilatation, the rupture of which had caused death.

Commentary.

This case has several points of interest. On his discharge from the infirmary this man's condition was so satisfactory that under favourable conditions of life and work it seemed probable that he might enjoy good health in the future, and when he left England for Canada his health seemed to be completely restored. The one element in his case which was opposed to a favourable prognosis was his history of several attacks of somewhat severe hæmoptysis which suggested the existence of a cavity containing an aneurism. In Canada the farm work which he took up was too heavy for him, although it was presumably the better employment for a consumptive than his original trade of silver spinner. I have seen several other instances of cases of arrested consumption going on to farms, as offering the best chance of open-air employment, and finding the work beyond their physical powers: This risk attaching to farm work must be borne in mind when advising patients as to the kind of employment they should seek for on discharge. In this particular instance the probabilities of

the existence of a pulmonary aneurism made the undertaking of laborious farm work distinctly hazardous. This patient's experience shows what a serious and obstinate source of mischief a cavity containing weakened vessels may prove, however complete the arrest of the disease may appear to be and however satisfactory the general health.

This man must be regarded as a failure, his aneurism being the immediate cause of his inability to maintain his health.

CASE XV.¹—Age 27.

Occupation.—In the London Fire Brigade.

Type of Disease.—Extensive disease of three lobes of the right lung, incompletely arrested.

Duration of Disease.—Four months.

Number of Weeks in Sanatorium.—Sixteen.

CONDITION ON ADMISSION.

Fever.—Nil.

Digestion.—Poor.

General Health.—Very fair.

Weight.—10 stones 5 lb.

Relation to Highest Known

Weight.— - 9 lb.

Lung Disease.— —

Normal Working Capacity.—

—

Family.—Unmarried, no one dependent upon him. Could live at home if unfit for work.

Home Conditions.—When at work in the Fire Station his conditions were satisfactory. His food was good and he got his meals at the

CONDITION ON DISCHARGE.

Nil.

Good.

{ Excellent. Walking ten
 { miles a day.

11 stones 9 lb.

+ 9 lb.

{ Much improved but arrest
 { still incomplete.

Incompletely restored but fit for light work.

¹ This patient was treated at the Mundesley Cottage Sanatorium.

CONDITION ON ADMISSION.

Firemen's Mess for which he paid 8s. a week. After discharge he returned to his own home in Devonshire where his conditions were quite satisfactory.

Wages.—30s. a week with lodging. Nil.

Work.—As fireman his chief work was done between 7 A.M. and 1 P.M. In the afternoon he had no routine station work to do. He was on night duty on every other night.

CONDITION ON DISCHARGE.

After-History.

May, 1903.—On his discharge he was not well enough to return to the Fire Brigade so went home to Devonshire to look for suitable employment. He failed to get any suitable work and meanwhile continued to live at home.

October, 1903.—He was not feeling so well and at Christmas he went for three months to the Hospital for Consumption at Ventnor.

March, 1904.—He was discharged from Ventnor fit for light work. At this time he wrote saying, "I feel in capital health, quite equal for doing some light kind of work if I could get it, but having been brought up on the sea and later in the Fire Brigade there is not very much that I can do. I keep my weight up very well—11 stones—and take the following diet:—

Breakfast.—Eggs and bacon, bread and butter.

Lunch.—Nil, except occasionally milk or suet pudding which I have a great liking for.

Supper.—Cold meat and bread and one and a half pints of milk.

January, 1905.—The patient's mother wrote saying that her son was very ill indeed and had done no work since the date of the last report. He died a few months later.

Commentary.

This case has been a disappointment, for although the patient's disease was of a somewhat extensive character, he did very well under treatment and was discharged restored to a very fair working capacity: he had too the advantage of a comfortable home in the country where he could live when out of work. He always complained of his home in Devonshire being too relaxing for him, but with this exception there appears to be nothing in his conditions after discharge in the least way unfavourable to him.

COMMENTARY ON THE FIFTEEN PATIENTS.

The records of these fifteen patients, though not so fully detailed with regard to their social and economic circumstances as in the case of the ten men whom I first considered, are none the less of considerable interest. Among these fifteen patients there are no less than ten who have relapsed and lost all hope of regaining any degree of working capacity. Their life-histories for this reason are perhaps all the more instructive, since they illustrate very well some of the difficulties with which the consumptive working man has to contend.

A record of ten failures out of fifteen patients treated does not sound a very satisfactory result, nor is it one that is calculated to afford much satisfaction to those who regard sanatorium treatment as almost an infallible cure for consumption. Bare statistics are, however, notoriously misleading, and as a matter of fact the results obtained in these fifteen cases are by no means discouraging, when the clinical conditions and social circumstances of each individual are fully taken into account. I have previously stated that a consumptive's future after discharge depends almost equally upon the condition of his lungs and general health, and upon the

social and economic conditions to which he returns. If he resumes work with either of these two factors unsatisfactory the chances of his maintaining his health are seriously prejudiced; if both factors are unsatisfactory his future is practically hopeless. The following table gives a review of the prognosis of these fifteen patients when discharged, the prognosis in each case being determined by their several clinical conditions and social circumstances, *viz.*, work, home, wages, etc.

TABLE No. VI.—SHOWING THE PROGNOSIS BASED ON CLINICAL GROUNDS, AND ALSO ON THE SOCIAL CONDITIONS RETURNED TO OF THE FIFTEEN CONSUMPTIVE WORKING MEN.

(1) SUCCESSES.

Case.	Prognosis on Clinical Grounds.	Prognosis Based on the Social Conditions Returned to.	Conditions at the Present Time.
No. 1	Good	Very good	Excellent health and full work after 2 years.
No. 2	Good	Good	Excellent health and full work after 5 years.
No. 3	Bad	Very good	Good health and full work after 5 years.
No. 4	Good	Good	Excellent health and at work when last heard of.
No. 5	Poor	Good	Fair health and full work after 2 years.

(2) PARTIAL SUCCESSES.

Case.	Prognosis on Clinical Grounds.	Prognosis Based on the Social Conditions Returned to.	Conditions at the Present Time.
No. 6	Bad	Good	Dead } " } Worked for periods " } varying from one to " } three years after " } discharge. " }
No. 7	Bad	Very good	
No. 8	Bad	Good	
No. 9	Good	Bad	
No. 10	Bad	Fair	
No. 11	Bad	Bad	

(3) ABSOLUTE FAILURES.

Case.	Prognosis on Clinical Grounds.	Prognosis Based on the Social Conditions Returned to.	Conditions at the Present Time
No. 12	Good	Very bad	Worked for nine months and then relapsed and died.
No. 13	Good	Very bad	Dead
No. 14	Bad	Bad	} Never worked at all before they relapsed.
No. 15	Bad	Good	

Of the five successes, the prognosis in three cases both on clinical grounds and in view of the social conditions returned to, was good. The fourth was a man with a poor clinical prognosis, who subsequently lived under very favourable circumstances and did well and the fifth patient, also one with rather a poor prognosis, owed his success to the favourable conditions of life to which he returned. In the next group, which includes six patients who were partial successes, *viz.*, who worked for some considerable time before relapsing, the prognosis in no less than five cases was on clinical grounds most unfavourable, the disease being so advanced that permanent arrest of the disease was even under the most favourable conditions possible, in the highest degree improbable. Four of these five patients however were so much improved by treatment and returned to such satisfactory conditions that they kept at work and enjoyed very fair health for several years. They certainly would not have worked anything like so long if their lung disease had not been to some degree arrested by treatment. The fifth man, who had a bad clinical prognosis, enjoyed fair health and worked for nearly a year before he relapsed although the work he returned to was most unsuitable. The sixth case in this group of partial successes was a man with a good prognosis, judged by the condition of his lungs and general health, who lost any chances he had of being permanently benefited by returning to a very unhealthy occupation. In the next group, containing the four absolute failures, there are two patients who when discharged were in

very good health and on this ground promised to do well. They both, however, returned to conditions of great poverty, squalid homes in the slums, inadequate income, poor food, etc., so that the advantage of having their lung disease well arrested was immediately lost. The third patient had both factors, clinical and social, against him, but the fourth in my opinion, though a case of fairly extensive disease, ought to have done better than he did seeing that he returned to a comfortable home in the country.

In this series are represented the following types :—

Of those who have been Successes.

1. Patients who enjoy the double advantage of having but slight disease and satisfactory social conditions, *viz.*, suitable work, a living wage, etc.

2. Patients who have an initial handicap of expensive disease compensated by very favourable conditions of home, work, wages, etc.

Of those who have proved Failures.

1. Patients who discharged with arrested disease and excellent general health, have their future prospects damned from the very day they leave the sanatorium, by their having to return to conditions under which a healthy person, much less a consumptive, cannot possibly maintain himself in physical efficiency.

2. Patients who admitted with disease in such an advanced state that its complete or permanent arrest is, humanly speaking, an impossibility, have as a result of treatment fairly useful lives prolonged for several years beyond the time when they would otherwise have ended.

REVIEW OF THESE PATIENTS FROM A CLINICAL
STANDPOINT.

In the next table I have prepared a summary of the clinical conditions of these fifteen patients on admission and on discharge and of their several working capacities when

they returned to ordinary life. I have also added a note as to after-histories. This table shows very clearly to what an extent the prospect of obtaining many permanent successes amongst these fifteen patients was discounted from the very beginning by the gravity of their clinical conditions when first admitted for treatment. Amongst the fifteen there were only three early cases, *viz.*, with recent infiltration of the apex of one or possibly two lobes of one lung: the remaining twelve were all cases of extensive disease of considerable duration, the prognosis in several instances being hopeless. As was to be expected, the condition of these fifteen men on discharge did not promise at all well for the future, and two patients only left with their disease completely arrested and with their general health and normal working capacity fully restored; these were two of the three early cases and they subsequently did well.

Record of the Two Patients who Left with their Disease Completely Arrested.

- | | |
|-------------------------------|------------------------------|
| 1. In good health and at full | } Two years after discharge. |
| work at the present time. | |
| 2. do. do. do. | |

The remaining thirteen patients all improved under treatment and had their disease arrested to a greater or lesser extent. Eight of them left with their general health fully restored, although physical signs of lung disease were still present.

Record of the Eight Men who Left Completely Restored in General Health but with Imperfectly Arrested Lung Disease.

1. At work and in good health after five years.
2. At work and in good health after five years.
3. Worked for two and a half years.
4. Worked for fifteen months.
5. Worked for twelve months.
6. Worked for twelve months.
7. Worked for ten months.
8. Worked for nine months.

TABLE NO. VII.—CLINICAL SUMMARY.

No. of Case.	Type of Disease.	Period under Treatment.	On Discharge.		Condition at the Present Time.
			Condition of Lungs and General Health.	Normal Working Capacity.	
1	Early disease (infiltration) of 1 lobe considerably arrested	4 weeks	Completely arrested	Completely restored	In good health and at full work after nearly 2 years.
2	Recent infiltration of 2 lobes of right lung	16 weeks	Incompletely arrested (A)	Completely restored	In good health and at full work after 5 years.
3	Extensive disease of upper and lower lobes of right lung, with excavation and infiltration of left lower lobe	21 weeks	Incompletely arrested (A)	Very nearly restored	In fair health and at full work after 5 years.
4	Infiltration of apex of left lung with acute dry pleurisy	12 weeks	Completely arrested	Completely restored	In good health and at work when last heard of.
5	Extensive chronic disease of upper and lower lobes of right lung considerably arrested	8 weeks	Incomplete arrest (B)	Incompletely restored, fit for light work	In fair health and at work after nearly 2 years.
6	Extensive active disease of 2 lobes of both lungs with clearing up pleural effusion (L.)	58 weeks	Incomplete arrest (A)	Apparently completely restored	Dead (remained in good health and did a full day's work for 2½ years before he relapsed).
7	Chronic progressive disease of upper and lower lobes of both lungs	15 weeks	Incomplete arrest (B)	Imperfectly restored, fit for light work	Dead (enjoyed very fair health and did a full day's work for 3 years after discharge, before relapsing).
8	Very extensive chronic disease of all lobes of both lungs with excavation associated with considerable retraction and emphysema	40 weeks	Incomplete arrest (B)	Very imperfectly restored	Dead (worked for 2 years after discharge).
9	Fairly extensive disease of both lobes of left lung considerably arrested	13 weeks	Incomplete arrest (A)	Probably completely restored	Dead (enjoyed good health and did a full day's work for 12 months after discharge).

10	Chronic disease of upper and lower lobes of left lung with excavation and recent infiltration of right upper lobe	19 weeks	Incompletely arrested (A)	Very largely restored	Dead (worked for 15 months after discharge).
11	Extensive disease of 2 lobes of right lung considerably arrested	13 weeks	Incomplete arrest (A)	Imperfectly restored	Dead (worked for 10 months after discharge).
12	Chronic disease of both lobes of left lung and of lower lobe of right lung considerably arrested	12 weeks	Incomplete arrest (A)	Very largely restored	Dead (worked for 9 months after discharge).
13	Fairly extensive disease of both lobes of left lung and recent infiltration of right lower lobe	28 weeks	Incomplete arrest (B)	Incompletely restored, fit for light work	Dead (did no work and died within 12 months of his discharge).
14	Extensive disease of both lobes of left lung considerably arrested	26 weeks	Incomplete arrest (A)	Completely restored	Dead (did irregular work for 12 months after discharge).
15	Extensive disease of 3 lobes of right lung incompletely arrested	16 weeks	Incomplete arrest (B)	Incompletely restored, fit for light work	Dead (never worked after discharge).

Definition of terms used in the table to indicate clinical condition on discharge :—

Complete Arrest—General health completely restored in every respect, and lung disease completely arrested (apparent cure), there being no physical signs present, or only such as are compatible with a completely healed lesion.

Incomplete Arrest { (A) General health completely restored, but physical signs of lung disease, though much improved, not entirely cleared up, *e.g.*, perhaps limited to a few moist sounds on cough.

(B) General health only imperfectly restored, and physical signs of the disease, *e.g.*, moist sounds, etc., still well marked.

The records of the remaining five who left with their disease very imperfectly arrested and with their general health still very poor represent merely prolongation of life, but nothing more could possibly have been expected. The actual record is as follows :—

Record of Five Patients Discharged with Incompletely Arrested Disease and in poor General Health.

1. In fair health and at full work at the present time after two years.
2. Worked for two years.
3. Worked for three years.
4. Never worked.
5. Never worked.

In my opinion, the records of these thirteen patients give a very fair idea of the ultimate results that may be expected from the treatment of advanced cases of consumption amongst the working classes.

REVIEW OF THE SOCIAL AND ECONOMIC CONDITIONS OF
THESE FIFTEEN PATIENTS.

Work and Wages.—In Table No. VIII. I give a summary of the occupation and wages of these fifteen patients at the date of their contracting tuberculosis and after their discharge. The occupations of most of them, as in the case of the ten patients whom I first considered, were distinctly unsuitable, indeed out of the fifteen, only two men appeared to be well advised in returning to their original work, *viz.*, the professional singer and the hawker. Such a state of affairs was in itself a big handicap to these men. An unsuitable occupation is a serious thing for patients with only early disease ; it is infinitely more serious for those with advanced disease. The fifteen men were, with two exceptions, all cases of somewhat advanced disease, so that their outlook from the point of view of employment after discharge was not very favourable. Fortunately, however, nine of them were unmarried and with no one dependent upon them, so that a comparatively small

TABLE No. VIII.—SHOWING THE OCCUPATIONS AND WAGES OF THE FIFTEEN PATIENTS AT THE DATE OF CONTRACTION OF TUBERCULOSIS AND SUBSEQUENT TO THEIR DISCHARGE.

No. of Case.	At Date of Contraction of Tuberculosis.		After Discharge.		Weekly Loss or Gain in Income.
	Employment.	Wages.	Employment.	Wages.	
1	Professional Vocalist	45s. a week	Professional Vocalist	Say 45s. a week	Same.
2	Grocer's Assistant	Say 20s. a week	Emigrated, Various Employments Abroad	—	—
3	Type Founder	33s. a week	(1) Traveller in Drapery	(1) Unknown	(1) —
4	Razor Blade Forger and Grinder	34s. a week	(2) Tram Car Conductor	(2) 28s. a week	(2) — 5s.
6	Steam Hammer Driver	Average 55s. a week	Razor Blade Forger and Grinder, but only worked short hours	Say 20s. a week	— 14s.
7	Clerk	25s. a week	Steward of Working Man's Club	35s. a week	— 20s.
10	Cabinetmaker's Assistant	12s. a week	(1) Income Tax Collector	(1) 25s. a week	(1) same.
14	Silver Spinner	Say 50s. a week	(2) Clerk	(2) 27s. a week	(2) + 2s.
15	In the London Fire Brigade	30s. a week with lodging.	Hall Porter at the Sheffield Medical School	—	—
			Emigrated, Various Employments Abroad	—	—
			Nil	Nil	30s. a week, etc.
5	(A) Upholsterer	Average 20s. a week	Upholsterer	Average 20s. a week	Same.
8	(B) Silversmith	35s. a week	Traveller in Cigars	—	—
9	(C) Boxmaker	35s. a week	(1) Van Driver	—	—
11	(D) Porter at Covent Garden Market	Usually 25s. a week	(2) Worked in a Bakehouse	25s. a week	Practically the same.
12	(E) Mechanic in Cycle Works	20s. a week	Porter at Covent Garden Market	20s. a week	Same.
13	(F) Hawker	Unknown	Mechanic in Cycle Works Hawker	Unknown	—

(A) Has a wife and one child dependent upon him; (B) Had a wife and three children dependent upon him; (C) Had three children dependent upon him (patient was a widower); (D) Had a wife and two children dependent upon him; (E) Had his widowed mother and several young brothers and sisters to support.

income was sufficient for their requirements. This meant a wider choice of employment. Four of them, also, had homes where they could live for some time free of cost. Of these nine patients, six on discharge changed their work for the better, *viz.*, two emigrated, four became respectively traveller, steward of Working Man's Club, tax collector and hall porter. One man never worked at all and the remaining two returned to their original occupations, one of them, however, to shorter hours. The wages earned by all these men before and after discharge are unknown, but at least three of them suffered material financial loss by changing their work, *viz.*, 5s. a week, 14s. a week and 20s. a week. The six men with families dependent upon them, with the exception of the hawker, all had unsuitable occupations; neither could any of them, with the exception of the silversmith, whose wife had started a small shop, afford to remain idle after discharge whilst looking for fresh employment. Four of these six men in consequence returned to their original occupations, as upholsterer, cycle manufacturer's mechanic, Covent Garden porter and hawker.

Of these, the last three all died within a year after discharge. The upholsterer, however, is still at work and in good health. The silversmith, whose wife had the small shop, did a certain amount of work as commercial traveller for one and a half years before he died. The sixth man, who had been fortunate enough to exchange boxmaking for a post of van driver, gave up this last job after some months in favour of the more lucrative one in the bakehouse. He did not survive this change very long. This case is a good example of the fact one often notices, *viz.*, that the consumptive when he is feeling well is very apt to overrate his physical capacities.

CONCLUSIONS.

The information obtained from this inquiry into the lives of consumptive working men, though perhaps it has not brought to light any facts hitherto unknown to those inter-

ested in the subject, is at least of value as representing a faithful picture of some of the difficulties that must attend any effort to help them.

This report fully confirms the opinions that have often been expressed by writers on this subject, as to the necessity for increased provision of very cheap or gratuitous sanatorium treatment and of the value of early diagnosis of the disease. I do not propose to discuss these two points, but with regard to the first, *viz.*, the provision of cheap treatment, I would draw attention to the fact that the cost of restoring several of my patients, *viz.*, Nos. 1, 3, 4, 6 and 8, first series, to their normal health and capacity for work was only 18s. a week per head. These were five of the patients who were treated at the Mundesley Cottage Sanatorium. Such a method of treating early cases of consumption amongst the poorer classes has the great advantage of requiring no outlay of capital expenditure, and it is one which I think might be more generally adopted in the absence of sufficient sanatorium accommodation. It would mean, in short, the establishment of small cottage sanatoria run on very similar lines to cottage hospitals. Two other most important problems associated with the question of the treatment of the consumptive poor, which I think the records of my cases serve to illustrate, are:—

1. The question of maintenance of the wives and families of working men whilst under treatment in a sanatorium.

2. The provision of a living wage for consumptives after their disease has been arrested.

This last question, of course, is intimately associated with that of the provision of suitable employment, and the two may be dealt with together.

1. *The Maintenance of Wives and Families during the absence of the Breadwinner.*

The compulsory insurance against sickness would be a great help, though in the large majority of cases the income derived from this source would be insufficient. The usual

sick and benefit clubs bring in an income of 10s. a week which is inadequate for the upkeep of a wife and family. In the absence of any source of income during illness, the more usual state of affairs, there remains the alternative of parochial relief or living in poverty. The latter of these two is the one usually chosen. A comparatively small weekly allowance say from 15s. to 20s. per week to a wife with several children is often sufficient to maintain them, especially when there is in addition a small weekly income from a benefit club. This was the case in three of the families recorded in this book. A charitable fund either local or connected with a sanatorium for the poor for the purpose of assisting those dependent upon the patients, if carefully administered on the lines adopted by the Charity Organisation Society, would be of great use.

2. *The Provision of a Living Wage, or in other words suitable Employment for Cases of Arrested Tuberculosis.*

To cure a consumptive with disease only in its earlier stages, it is necessary for the individual to live at the highest possible level of physiological fitness for a very long time; how long, it is difficult to say, but twelve months is certainly within the mark. When the disease has gone beyond its early stages, the time required for effecting the cure is very considerably lengthened. Herein lies the difficulty in dealing with consumption, and so it must remain until its specific cure is found. Other things being equal, the prognosis in the case of the consumptive leisured classes is infinitely better than that of the consumptive poor. The former can afford to continue their treatment for as long as is necessary, whilst the latter, after a few months in a sanatorium, have usually to return to the same conditions under which they contracted their disease. If these conditions, especially with regard to work, are satisfactory the outlook for the future may be good enough, but when they are bad the possibilities of relapse are considerable. The surprising thing about the consumptive working man is not so much that he so often relapses as that

he so often holds his own despite the most adverse circumstances. The occupations of a great number of patients admitted to sanatoria for the working classes necessitates work under conditions which are distinctly prejudicial to consumptives. I cannot state the proportion but the following figures may give a fair indication. See Table IX.

In a considerable proportion of these cases a change of employment was desirable. The provision of suitable employment is a very difficult matter. To begin with one must bear in mind that no employment, however healthy and open-air its character, is suitable unless the income a man can earn at it brings him in a sufficient sum for his proper maintenance. This fact is one which, I think, is not sufficiently appreciated. Personally, rather than send a man back to such conditions of work as will give him an inadequate income, I would advise him to return to indoor or possibly even an unhealthy occupation at which he can with certainty earn a living wage. In the case of unmarried men, a change of employment entailing even a considerable loss of income is often quite advisable, for physical efficiency can usually be maintained by a single man on a wage of from 15s. to 20s. a week, a sum quite inadequate for the needs of a man with a wife and family. To judge from my own experience, change of employment usually means some loss of weekly income; on the other hand a return to unhealthy employment must be associated with risk of subsequent relapse. One finds that patients for the most part fail to make a satisfactory change in their employments and that the majority in consequence return to their original trades or work. This can be easily understood. It is hard enough for the sound unemployed to get work in many instances, and even a healthy man usually finds it difficult to obtain a situation in work to which he is quite unaccustomed. The labour market for consumptive working men in short is a very restricted one, unless philanthropy, rather than strict commercial interest, regulates it. A method of meeting this difficulty as to employment would be to give a man whose occupation is to be either unhealthy or unpro-

TABLE IX. SHOWING THE ORIGINAL OCCUPATION AND THE EMPLOYMENT RETURNED TO OF NINETY-FIVE CONSUMPTIVE WORKING MEN.

Original Occupation.	Employment Returned to.
Salvation Army Officer	Insurance Agent for the Salvation Army
Carman to a Firm of Brewers	Coachman
Wood Sawyer	Wood Sawyer
Cook in London Restaurant	(1) Omnibus Conductor
	(2) Restaurant Cook (London)
Coal Miner	(1) Telephone Company's Labourer
	(2) Engineer
Coachman	Coachman
Cabinetmaker's Apprentice	Nil
Chaff Cutter	Casual Outdoor Labourer
Gardener	Gardener
Workhouse Infirmary Attendant	Workhouse Infirmary Attendant
Professional Vocalist	Professional Vocalist
Grocer's Assistant	Emigrated, Various Employments Abroad
Type Founder	(1) Traveller in Drapery
	(2) Tram Car Conductor
Razor Blade Forger and Grinder	Razor Blade Forger and Grinder (short hours)
Steam Hammer Driver	Steward of Working Man's Club
Clerk	(1) Income Tax Collector
	(2) Clerk
Cabinetmaker's Assistant	Hall Porter at the Sheffield Medical School
Silver Spinner	Emigrated, Various Employments Abroad
In the London Fire Brigade	Nil
Upholsterer	Upholsterer
Silversmith	Traveller in Cigars
Boxmaker	(1) Van Driver
	(2) Worked in a Bakehouse
Porter at Covent Garden Market	Porter at Covent Garden Market
Mechanic in Cycle Works	Mechanic in Cycle Works
Hawker	Hawker
Riverside Labourer	Riverside Labourer
Engineer	Entered the Navy
Stores Packer	Stores Packer
Indoor Working Man (Moulding)	Nil
Cook	Cook
Dressmaker	Nil
Clerk	Clerk
Laundress	—
Housework	Housework
Housework	Housework
Dressmaker	Nil
Painter	Painter
Upholsterer	Upholsterer
Trouser Presser	Nil
Carter	Carter (Country)
Cat's Meat Man	Cat's Meat Man
Clerk	Clerk
School Teacher	School Teacher

ORIGINAL OCCUPATION AND EMPLOYMENT RETURNED TO—(continued).

Original Occupation.	Employment Returned to.
Baker	Carman
Carpenter	Carpenter
Dressmaker	Dressmaker
Retired Soldier	Emigrated to Canada, Farming
Carman	Carman (London)
Farmer	Farmer
Billiard Marker	Poultry Farming
Stevedore	Stevedore
Drapery Assistant	Nursemaid
Labourer	Labourer
Lady's Maid	Lady's Maid
Grocer's Assistant	Grocer's Assistant
Printer	Motor Car Driver
Housemaid	Domestic Servant
Tailor	Tailor
Leather dresser	(1) Outdoor Employment (nature unknown)
	(2) Leather dresser
In the Army Clothing Department	In the Army Clothing Department
Draper	In Tobacconist's Shop
Timekeeper	Poultry Farming
Stable Boy	Page Boy
Artificer in Engine Room	In Motor Works
Printer	Farm Hand
Brushmaker	Brushmaker
Labourer	Labourer
School Teacher	School Teacher
Omnibus Driver	Carman (Coal Cart)
Housekeeper	Housekeeper
Warrant Officer (Navy)	Warrant Officer (Navy)
Engine Fitter	Motor Car Driver
Milkman	Milkman
Draper's Assistant	Draper's Assistant
Tramway Manager	Tramway Manager
Railway Telegraph Clerk	Railway Ticket Collector
Labourer	Odd Work at the Kelling Sanatorium
Clerk	Clerk
Gardener	Gardener
Clerk	Work in Slate Quarry
Labourer	Labourer
Clerk	Purser
Publican	Publican
Parcel Wrapper-up	Poultry Farming
Weaver (Hand Loom)	Weaver
Clerk	Clerk
Shopkeeper	Shopkeeper
Engineer	Nil
Clerk	Clerk
Clerk	Clerk
Clerk at Coal Wharf	Clerk
Railway Clerk	Railway Ticket Collector
Gardener	Gardener
Clerk	Clerk
Railway Porter	Railway Porter (Country Station)

fitable some financial assistance for a time at least after his discharge. If this were done he could afford to return to a healthier but less remunerative employment, or again, he could return to his original employment, but with shorter hours. I have seen both these methods work very well in practice. The greatest difficulty to this plan is finding the money; in the cases I have referred to, financial help was provided by private charity. Of course, if all cases of consumption were diagnosed in an early stage, and could be kept under conditions of sanatorium life for a long enough period to make permanent arrest, as far as possible, a certainty, this difficult question of employment after discharge would to a large extent disappear. Early diagnosis and a long course of treatment are, indeed, the solution of this problem. Under existing circumstances, I believe that a committee connected with a sanatorium would do a great deal of good if they devoted themselves entirely to the investigation of the social conditions of the patients, and actively assisted them to return to conditions of life and work in which they would be likely to remain in good health. Such a committee would get into touch with large employers of what we may term healthy labour, *e.g.*, tram and omnibus companies, insurance companies (for agents), house agents (for caretakers), etc., and supply them with employees whose credentials had been thoroughly investigated.

The committee could also give financial help to patients after their discharge when it seemed advisable for them to return to employments at which either from the size of their families or the poorly paid nature of their work they could not earn a living wage. One has seen a good many instances in which an allowance of 10s. to 15s. a week for the first few months or so after discharge has made all the difference between ultimate success and failure. In the following table I show the approximate income required for the maintenance of families of various sizes, which I think would help any committee to determine the adequacy of the income to be returned to in any particular case.

Suggested Sliding Scale of necessary Weekly Income to provide Cases of Arrested Tuberculosis with a Living Wage.

This table is based upon figures in a table prepared by Rowntree, giving the minimum necessary expenditure per week for families of various sizes.

It allows no margin for luxuries, such as alcohol, or expenses incurred by sickness.

Family.	Food.	Rent.	Household Sundries.	Total
1 man	6s.	3s.	3s. 6d.	12s. 6d.
1 man and 1 woman	12s.	4s.	4s.	20s.
1 man, 1 woman and 1 child	15s.	4s.	4s. 6d.	23s.
1 man, 1 woman and 2 children	18s.	4s.	5s.	27s.
1 man, 1 woman and 3 children	20s.	4s.	5s. 6d.	29s. 6d.
1 man, 1 woman and 4 children	22s.	5s. 6d.	6s.	33s. 6d.
1 man, 1 woman and 5 children	24s.	5s. 6d.	6s. 6d.	36s.
1 man, 1 woman and 6 children	26s.	5s. 6d.	7s.	38s. 6d.

Since writing the views just expressed as to the probable value of after-care committees, I have been able to obtain some information as to how they work in practice. The Kelling Sanatorium at Holt, Norfolk, organised such a committee in May, 1904, and in the annual report for 1904, the following account of this work is given :—

KELLING SANATORIUM.

Report of the After-care Committee.

In pursuance of the original intention of the founders of this institution, as soon as the new buildings were erected and occupied early in the year, attention was turned to the question of after-employment.

A sub-committee was appointed in May called the After-Care Committee, to consider the whole question, and they have met from time to time throughout the rest of the year.

Their work has been in three directions. In the first place they have considered the futures of the individual cases in the

institution, and meeting at the sanatorium, as they do, with the resident medical officer as one of the members, they have been able to be in personal touch with the patients.

In the second place, where a patient would otherwise have returned to unsuitable or no employment, or bad surroundings, and where the patient was willing to be so assisted, attempts have been made to secure temporary or permanent employment of a suitable nature.

With this view, in October, a printed leaflet, of which a copy appears below, was issued in large numbers to employers and others interested, and several promises of work were received.

It is hoped to take advantage of these kind offers in the spring and summer months, when the light outdoor labour, which is principally what is offered, is mostly required.

Meanwhile, through the influence of members of the committee, suitable work, either temporary or permanent, has actually been obtained outside for seven patients, and another has been promised a permanent situation.

In the third place, separate quarters have been built for the accommodation of four convalescent ex-patients at the sanatorium itself, and work has been found for them, which is calculated to pay for at any rate part of their maintenance.

The finding and organising of work suitable for each case has been by no means easy.

The terms of this employment will be found in the notice of the scheme reprinted below.

A scale of remuneration has been arranged by which they are paid according to the number of hours' work they do, this being settled by the doctor according to each man's physical capacity. Thus one man does five hours a day and gets 2s. a week, another does seven and gets 3s. 6d., and another does a full day's work and gets 5s.; all of course get their board and extra milk. They are fed and looked after by the gardener's wife.

The men so employed so far have been eight in number, not more than four being kept at any one time.

An extension of the accommodation is now being carried out, which will enable the committee to employ six at a time.

There are many cases discharged fit to do a full day's work, but for whom it would be unwise to go back to their old surroundings and occupation. For them it should be the business of the committee to obtain suitable situations outside, where they may earn their livings without further dependence upon charity. Many others who have had more extensive disease are still able to do some work, and they must be to some extent dependent on charity. But they need not be so *entirely*, and for some of them employment, varying with their capacities, may be found at the sanatorium itself, as is now being done, while it is earnestly hoped that charitably disposed persons may be willing to assist others in the same way.

It is believed that somewhat on these lines will be found the way to provide systematically and efficiently for the future of the ex-patient.

Copy of printed leaflet sent to employers of labour, etc., by the After-Care Committee of the Kelling Sanatorium:—

To Employers of Labour and Others Interested in the Working-Class Consumptive.

It is felt that it should be more generally recognised that, in dealing with consumption, sanatorium treatment is only the first step.

Of suitable cases, treated at a sufficiently early stage, a large proportion are discharged fit for work, but if the good gained at the sanatorium is to be maintained, it is essential that the patient should, on leaving, be able to go to suitable employment in suitable surroundings.

The Committee of the Kelling Open-Air Sanatorium, feeling the vital importance of this side of the work, have appointed a special sub-committee called the After-Care Committee, who consider the future of each of the sanatorium patients, and, where necessary, endeavour to obtain suitable work for him when he leaves such employment and surroundings.

Work is provided for a certain number at the sanatorium itself, but as it is impossible to provide in this way for more than a very small fraction of those discharged, the committee now venture to appeal to employers of labour to assist them.

They can help, it is suggested, in two ways:—

1. By being willing now and then to find temporary light work for a man.

2. By occasionally giving one of our men the chance of a suitable permanent position.

In the first case the idea would be to enable the man for a short time to earn a bare living wage in suitable surroundings while he looked about for permanent work, and, in the second, to provide him, at no doubt a moderate wage, with suitable permanent employment.

Our men are almost all skilled in some trade, and we would obtain in every case a character from the previous employer.

It would be clearly understood that no responsibility whatever as to the man's health should be undertaken by the new employer; if a man so employed should break down, the committee would like to be informed, and would do all they could to secure him further treatment.

The employment may be either out of doors or in pure air indoors. It should not involve any great physical effort, nor should it require to be done against time or at high pressure.

The following list contains a few of the employments suggested:—

Light work about a farm or garden.

Driving.

Caretaking.

Agency work, as for instance, insurance agency, rent collecting, some forms of travelling, etc.

Clerical work if in good conditions.

Estate work, such as light carpentering, looking after an engine, etc.

Motor car driving.

Check taking.

Door keeping and many others.

The risk of infection has been mentioned as an objection, but there is no doubt that it has been greatly exaggerated, and, in any case, it is certain that a man who has been treated at a sanatorium, whose symptoms have disappeared, and who has been taught the proper precautions, is not only unlikely to be a source of infection, but is actually a missionary of health to all with whom he comes in contact.

The preferential consideration given to subscribers with respect to the admission of patients into the sanatorium will be given to any employers who will consent to give, instead of a subscription in money, this invaluable practical aid.

May we write to you when we want employment for a man? Please reply to—the Hon. Sec., Kelling Open-Air Sanatorium, Holt, Norfolk.

Mr. W. J. Fanning and Mr. L. D'Oyly Carte have kindly furnished me with the following further particulars as to the work of this committee. In reply to the circular sent to various employers of labour, they received very few offers of work from large business firms. The promises of assistance came chiefly from gentlefolk with gardens and from neighbouring farmers. The wages offered were small, and the work mostly of a temporary character. The replies received from big commercial houses in Norwich were not encouraging. A large firm of nursery gardeners declined to consider the taking on of any consumptive labour on the grounds that its presence would have a bad effect upon the other men, owing to the consumptive labourers having lighter work reserved for them. They argued that the consumptive would be bound to take things somewhat easily, and that in consequence the work generally might tend to become slack. The Kelling Committee find that they can do more by interesting themselves in each patient individually, and trying to improve his after-conditions. For instance, as the result of such personal inquiry they found two men billets as motor-car drivers; originally one of these men had been employed as a printer and the other as an engine fitter. Again, at the committee's suggestion railway companies have taken back

two patients formerly clerks in their service as ticket collectors, a most suitable kind of employment. All these patients, I may add, are doing very well. The experience of the Kelling Committee agrees very much with my own in this respect, and it is clear that large employers of labour, though not disposed to reserve their easiest posts for people with arrested consumption, are for the most part very generous to those who contract this disease in their own service. Moreover, when told of the advisability of the step, they will often, in the interests of their consumptive servant, give him a light job after his discharge from a sanatorium. The chances of this change of work being made are certainly greater if some sanatorium official takes the matter in hand and writes on behalf of the patient ; indeed, the patient himself would in most cases never think of doing so. Lastly, before leaving this question of employment, I should like to say a few words on the subject of the establishment of farm colonies in connection with sanatoria, since in the opinion of many such a scheme would help us to solve the difficulty of employing consumptives. In the absence of any such colony "in being" at least in this country, there are no certain grounds upon which to base an opinion as to its probable value. Perhaps the best idea of its possibilities are to be obtained from the experience of those in charge of colonies run on somewhat similar lines to those proposed for the benefit of consumptives. The only colony on any scale that I am acquainted with personally is the one managed by the Salvation Army at Hadleigh in Essex for the unemployed, and the conclusions I formed as the result of a short visit to this well-managed place as to the practical value such a colony would prove as part of the work of a sanatorium, are perhaps worth recording.

The colony at Hadleigh consists of 3,000 acres of agricultural land, upon which are carried out the following industries : Ordinary mixed farming, dairy work, market and fruit gardening, horticulture, poultry rearing and brick making. At these various occupations all sorts and conditions of

labour, skilled and unskilled, are at work. The officer in command of the colony puts each new arrival to the work he seems to be most fitted for, although in most instances it is absolutely unfamiliar to him. In charge of these several departments of industry are a number of permanent officials, highly skilled in their several callings, whose duty it is to instruct newcomers and to oversee the work. The men admitted to the colony, excluding the permanent staff, are housed in large airy dormitories which can be erected at a cost of £40 a bed. The cost of keeping the men works out at 10s. a week a head, *viz.*, 1s. 6d. per head for lodging, 6d. for washing and 8s. for food. The dining-hall, which seats 300, with a kitchen adjoining, cost £750. In return for board and lodging the colonists are expected to do a good day's work, *viz.*, eight and a half hours. The foreman of each department estimates the value of the work done by each man under his charge, and this is put to the credit of the men as wages. The wages are calculated on the scale prevalent in the district, and whatever sum remains to the man's credit after deduction of 10s. a week for his maintenance he is allowed to keep. A third of any such surplus, however, he has to bank, and he also has to refund the cost of any clothes given to him. Newcomers, of course, engaged at unfamiliar work often fail to pay their way even if willing enough workers; lazy men also are not profitable. Men on the land for the first time in their lives, so an official told me, cannot get through a third of the work of that done by a skilled labourer, and, as he remarked, it is not possible to turn a decayed clerk or a drunken doctor into a skilled agricultural labourer in a few months. When a man cannot pay his way the loss falls upon the colony, and when a man earns more than his keep he is allowed to keep the balance, thus encouraging thrift and industry. This principle is not favourable to the financial success of the colony which, though run on business lines, is essentially philanthropic rather than commercial in character. Another factor which does not tend to its commercial success is that of the constant changing of colonists, for as soon as a

man's work becomes of some real value, he leaves. The colony passes through its hands some 500 men in a year, and the average stay is about four months. This work results in a loss of about £3,000 a year. In answer to my query as to the proportion of the men that returned to work on the land, the colony officer told me that the majority do so, but as they are all unmarried, many of them young and willing to go back to a wage of 10s. a week or so, this fact is of less significance than at first appears. This brief outline of the Hadleigh work allows one to form some opinion as to the probable value such a colony would prove for the treatment of consumption. A consumptive colony would have several things in common with Hadleigh. It would suffer from the same disadvantages of having to employ men at occupations of which many of them would have no knowledge, and they would also lose their men as soon as they had learned enough to make their labour of any real commercial use. For these reasons it is very difficult for such a colony to compete successfully, commercially speaking, in the open market or even to be self-supporting, but the financial loss, as in the case of the Salvation Army colony, would be amply compensated by its social and philanthropic value. A consumptive colony would suffer from the additional handicap of having tuberculous labour instead of sound labour. As a compensation, however, the class of colonists would be better than at Hadleigh, whose labour is recruited from the submerged tenth. The work done at Hadleigh would for the most part be suitable employment for consumptives; brick making is an exception. Additional sound labour would, however, be necessary in most of the departments to do the heavier work, *e.g.*, digging in the market garden, etc. The necessity for having permanent skilled heads of departments would be the same in both cases. With regard to the very important point, *viz.*, the cost of keeping consumptives on such a colony, I can see no reason why it should be much greater than at Hadleigh, where board and lodging cost 10s a week a head. The housing accommodation in dormitory form as

it exists at Hadleigh could be retained, though it would have to be on a somewhat more generous scale. This would raise the cost of lodging to some slight extent, so that the weekly expenditure per head on this item would exceed 1s. 6d., the cost of lodging at Hadleigh. The cost of washing at Hadleigh, *viz.*, 6d. per week a head, would also be exceeded. The weekly cost per head for food at Hadleigh, *viz.*, 8s., would be quite enough to supply convalescent working men with a proper diet. Of this I am quite confident, for Mr. Chapman and I have demonstrated the fact by practical experience. The actual dietary given at Hadleigh would, I believe, be quite satisfactory to convalescent consumptives; and judging from my personal experience of meals there, the food supplied is of good quality and given generously. (Some sample diets from the Hadleigh colony will be found in the appendix.) That newcomers to the Hadleigh colony invariably gain weight rapidly supports this opinion and is evidence that an efficient diet can be provided at the small cost of 8s. a week a head. Making allowance for the extra cost for housing and washing compared with the Hadleigh figures, I think that a number of convalescent consumptives could be kept for from 16s. to 18s. a week a head. The practical value of colonies run in connection with a sanatorium would be twofold. In the first place a certain proportion of patients, made up mostly by young unmarried men with no one dependent upon them, would learn enough of some open-air employment to enable them to return to it after discharge. Many of these patients would in all probability return permanently to country life and eventually make good incomes—at least this is the experience at Hadleigh. Apart from the men who would learn a new employment, and I think they would be the minority, a month or two on the colony would be an excellent thing for many convalescents, even though they had no intention of returning to the work they would learn there. The removal of such convalescents to the colony would make room for fresh patients in the sanatorium itself, and by living at the colony on less ex-

pensive lines, probably at a cost of less than a pound a week, and in addition doing a certain amount of work, the length of their treatment could be appreciably extended at a comparatively small cost. This would be a great gain in view of the necessity that drives many patients to return to somewhat risky employments, in which case the complete arrest of the disease is essential. The colony would in short be a finishing school, where men would gain confidence in themselves and in their ability to do work. They would also be living under good conditions at a comparatively small cost to the sanatorium, and under conditions, moreover, in the matter of accommodation, diet, and possibly also work, more allied to those to which they would be shortly returning. A consumptive colony attached to a sanatorium is well worth a trial. I have to thank the Salvation Army for the opportunity they kindly afforded me of visiting their colony, and especially I am indebted to the officer in charge there, Brigadier Iliffe, for his hospitality and courtesy during my stay at Hadleigh.

There is another way in which considerable practical assistance can be given to the consumptive poor, *viz.*, by advice as to the cheapest way in which they can supply themselves with a proper diet. In cases where there is no possibility of the weekly sum available for food being more than from 3s. to 4s. a week, it is necessary for the man or the family concerned to sacrifice to some extent the palatability of their diet and to buy cheap food-stuffs of high nutritive value, *e.g.*, beans, lentils and other forms of vegetable proteid, tinned meats, separated milk, etc. A printed form containing this information might well be given to patients on their discharge. In the appendix will be found some information as to the provision of cheap diets.

CONCLUSIONS AS TO THE PERMANENT VALUE OF THE SANATORIUM TREATMENT FOR THE CONSUMPTIVE WORKING MAN.

I have yet to consider what inferences are to be drawn from the records of my twenty-five patients as to the value

of the sanatorium treatment for the consumptive working classes. I may say at once that any conclusions one may arrive at are obviously open to the criticism that the life-histories of twenty-five patients scarcely afford sufficient data to warrant an opinion being expressed. At the same time, while recognising this source of fallacy, I feel that the histories of a comparatively small number of cases, if carefully worked out, may be quite as instructive as statistical tables dealing with a mass of information less accurately observed and recorded. My own opinion, indeed, is that the twenty-five patients whose careers I have followed, afford us good grounds upon which to estimate the value of sanatoria for the consumptive poor, since they represent very well the experience of philanthropic sanatoria at the present time. In the following tables I show a statistical summary of the results of treatment of the twenty-five patients, as shown by their after-histories. In Table A. I give a collective summary of all the

TABLE A.

TABLE OF STATISTICS OF RESULTS OF TREATMENT OF TWENTY-FIVE CONSUMPTIVE WORKING MEN AT SHEFFIELD AND MUNDESLEY.

Type of Case Treated.	Number.	Condition at Present Time After Periods Varying from 2 to 5 Years.		
		Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
Early Cases	9 or 37 %	7 or 77 %	2 or 22.2 %	None
Fairly Recent and Extensive Disease	11 or 46 %	2 or 18 %	2 or 18.4 %	7 or 63.6 %
Chronic Progressive Disease of Considerable Duration	4 or 17 %	1 or 25 %	—	3 or 75 %
Totals	24 ¹	10 or 41.7 %	4 or 16.6 %	10 or 41.7 %

¹ One patient has been lost sight of; when last seen, he was in very good health and at work.

TABLE B.
TABLE OF STATISTICS OF RESULTS OF TREATMENT OF TWENTY-FIVE CONSUMPTIVE WORKING MEN.
THIRTEEN PATIENTS TREATED IN THE SHEFFIELD ROYAL INFIRMARY, 1899 TO 1900.

Clinical Type.	No. of.	Condition on Discharge.		After 1 Year's Work.				After 2 Years' Work.				After 3 Years' Work.				After 4 Years' Work.				After 5 Years' Work.		
		Complete Arrest.	Incomplete Arrest.	Good Health, Full Work.	Poor Health, Some Work.	Lost Sight of.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.
Fibro-Caseous Disease. (A) Early Cases (B) Fairly Recent and Extensive Disease (C) Chronic Progressive Disease of Considerable Duration	2	2	—	1	—	1	—	1	—	—	1	—	—	1	—	—	1	—	—	1	—	—
	7	—	6	4	3	—	—	3	—	4	3	—	—	2	—	1	2	—	—	—	—	—
	4	—	2	3	1	—	—	2	1	1	2	1	—	—	—	2	1	—	—	—	—	—
	13	2	8	8	4	1	—	6	1	5	6	1	—	—	—	3	4	—	—	—	—	—

TWELVE PATIENTS TREATED AT MUNDESELEY, 1903 TO 1904.

Clinical Type.	No. of.	Condition on Discharge.			After 1 Year's Work.			After 2 Years' Work.		
		Complete Arrest.	Incomplete Arrest.		Good Health, Full Work.	Poor Health, Some Work.	Death.	Good Health, Full Work.	Poor Health, Some Work.	Death.
		A.	B.							
Fibro-Caseous Disease.	(A) Early Cases	6	2	—	6	2	—	6	2	—
	(B) Fairly Recent and Extensive Disease	—	2	2	—	4	—	—	2	2
	(C) Chronic Progressive Disease of Considerable Duration	—	—	—	—	—	—	—	—	—
		12	6	4	2	6	6	—	4	2

Definition of terms used above to denote condition on discharge:—

Complete Arrest.—General health completely restored in every respect, and lung disease completely arrested (apparent cure), there being no physical signs present, or only such as are compatible with a completely healed lesion.

Incomplete Arrest.—(A) General health completely restored, but physical signs of lung disease, though much improved, not entirely cleared up, *e.g.*, perhaps limited to a few moist sounds on cough.

Incomplete Arrest.—(B) General health only imperfectly restored, and physical signs of the disease, *e.g.*, moist sounds, etc., still well marked.

Definition of Clinical Types:—

Early Cases.—Patients with early disease in one or two lobes only, and with little or no fever or other constitutional disturbance. *Fairly Recent and Extensive Disease.*—Patients with fairly recent active disease in two or more lobes with well-marked constitutional disturbance, *e.g.*, fever, etc.

Chronic Progressive Disease of Considerable Duration.—Cases of long-standing disease with general constitution and recuperative power permanently damaged.

N.B.—Throughout the book the above terms are used in the sense now defined.

cases, but since there is a considerable difference in the length of time that has elapsed since the patients were discharged respectively from Sheffield and Mundesley, I also give the statistics of these two groups of patients separately. The broad results shown in these tables are that of the twenty-five patients treated, ten or 41·7 per cent. are at the present time at full work and in normal health after periods varying from one and a half years to five years subsequent to their discharge, that four or 16·6 per cent. are in fair health and able to do a certain amount of work, and that the remaining ten or 41·7 per cent. are dead. One case has been lost sight of, but when last seen he was in excellent health and with his disease completely arrested. It is to be noted that the successes have been chiefly obtained amongst the early cases, no less than 77 per cent. of this type who were treated having been restored to their normal health and working capacity. The proportion of successes amongst the patients admitted with recent but fairly advanced disease, or with chronic progressive disease of long standing, has been much less; of the fifteen patients of these types, only three are in good health and at full work at the present time, two are in fair health and doing a certain amount of work and the other ten are dead. It must be remembered that most of the ten patients who are dead worked for a year or two after their discharge before they relapsed. The conclusions then which are to be drawn from the records of these twenty-five cases are that:—

1. *With regard to early cases admitted to Sanatoria*, we may expect to obtain complete arrest of the disease and thorough restoration to normal health and working capacity in some 75 per cent.

This result can be obtained in from three to six months' sanatorium treatment.

The cost need not be more than from 20s. to 30s. a week per patient.

This arrest of the disease and restoration of health may be expected to be maintained in some 70 per cent. of these

cases after their return to work. Although many cases of early disease maintain their health even after return to somewhat unfavourable conditions of life and work, their social and economic conditions after discharge have a most important bearing upon their futures.

2. *With regard to patients admitted with fairly recent but somewhat extensive lesions, or with chronic progressive disease of long standing*, complete arrest of the disease (*viz.*, the clearing up of all physical signs save those compatible with a completely healed lesion) is but rarely obtained as a result of from three to six months' treatment, although in many instances material improvement both in the lung condition and in general health, enabling the patient to return to work, may be looked for. The duration of life and capacity for work in such cases depends almost entirely upon the suitability of the conditions of life and work returned to, and although permanent restoration to health may be looked for in a certain proportion of these cases, the chances are very much against such a satisfactory result being obtained.

It would seem that about 20 per cent. of cases with fairly recent but somewhat extensive disease are permanently restored to their normal working capacity, and about the same proportion of those with chronic progressive disease of long duration. Of the remaining 80 per cent. of both these types, some 60 per cent. die in the course of three or four years after their discharge. The remaining 20 per cent., though often enjoying but indifferent health, are able to do a fair amount of work for a good many years.

If one epitomises the results obtained in the twenty-five cases into a statistical statement as to the possibilities of the sanatorium treatment for the working classes, we have the following:—

Of all admissions to a sanatorium for the working classes we may expect:—

Permanent restoration of health and normal working capacity in 41·7 per cent.

Death in the course of from two to five years after discharge in 41·7 per cent.

Some degree of permanent restoration of health and capacity for work in 16·6 per cent.

These conclusions as to the possibilities and limitations of the sanatorium treatment for the working classes are, I think, of considerable interest, and if substantially correct they give an affirmative answer to the query which has been somewhat frequently raised of late: "Is the sanatorium treatment of the working classes worth while?" This question is one of such great importance that I felt, after working out these conclusions, that I was not justified in committing myself to an opinion, which might possibly be quoted without the context as to some extent authoritative, without first having attempted to substantiate or disprove the accuracy of the deductions. This can only be done by comparing my experience with that of other physicians who have interested themselves in this branch of medical practice.

Unfortunately it is not possible as yet to obtain many statistics comparable with my own, since the majority of sanatoria for the working classes in this country have not been open long enough. The sanatoria for the counties of Durham and Westmoreland, however, have each been established for some five years, and the records of the good work done in these two institutions having been carefully kept, their statistics of results are especially interesting and instructive for my purpose. I have obtained confirmatory evidence from the Durham and Westmoreland records on the following points:—

1. The percentage of all patients treated who maintain their health and full working capacity after discharge and return to work.

2. The proportions of cases of early disease, recent and somewhat extensive disease, and of chronic progressive disease of long standing, of which the total admissions to such sanatoria are made up.

This last point is an important one to determine, since

the proportion of successful results being by far the highest amongst early cases, statistics of after-histories of any sanatorium are considerably influenced for good or ill by the relatively high percentage of early cases which are included amongst those treated.

In the next table I give the results of five years' work of the Durham and Westmoreland sanatoria, and for purposes of comparison I have repeated the statistics of my own results. I also show similar records from the Kelling Sanatorium, which are of considerable interest, although they only cover a period of two years.

From this table it is seen that the experience of the Durham and Westmoreland sanatoria as to the permanent value of the sanatorium treatment is strikingly similar to my own. Looking first at the broad results we have the following comparisons :—

After Periods Varying from One to Five and a Half Years after Discharge.

No. of Cases Treated.	In Normal Health and at Full Work.	Little or no Work, and in Poor or only Fair Health.	Death.
At Durham, 268	50 %	19·6 %	30·4 %
At Westmoreland, 173	46·2 %	22·5 %	31·2 %
At Mundesley and Sheffield, 24	41·7 %	16·6 %	41·7 %

These three sets of figures taken together give the following results obtained in 465 cases treated :—

No. of Cases Treated.	In Normal Health and at Full Work.	Little or no Work, and in Poor or only Fair Health.	Death.
465	46 %	19·6 %	34·4 %

Comparing next the proportions of the successes and failures which have occurred amongst the various types of

RESULTS OF THE SANATORIUM TREATMENT FOR THE WORKING CLASSES AS SHOWN BY AFTER-HISTORIES.

DURHAM COUNTY SANATORIUM.

(Five Years' Work).

Type of Case Treated.	Number.	Condition at Present Time After Periods Varying from 1 to 4 Years After Discharge.		
		Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
Early Cases Fairly Recent and Extensive Disease Chronic Progressive Disease of Considerable Duration	146 or 54.4 %	99 or 67.8 %	22 or 15 %	25 or 17.2 %
	122 or 45.6 %	35 or 28.6 %	31 or 25.4 %	56 or 45.9 %
Totals	268	134 or 50 %	53 or 19.6 %	81 or 30.4 %

WESTMORELAND COUNTY SANATORIUM.

(Five Years' Work).

Type of Case Treated.	Number.	Condition at Present Time After Periods Varying from 1 to 4½ Years After Discharge.		
		Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
Early Cases Fairly Recent and Extensive Disease Chronic Progressive Disease of Considerable Duration	49 or 28.3 %	41 or 83.6 %	8 or 16.3 %	—
	60 or 34 %	30 or 50 %	20 or 33.3 %	10 or 16.6 %
	64 or 37 %	9 or 14 %	11 or 17.2 %	44 or 68.7 %
Totals	173	80 or 46.2 %	39 or 22.5 %	54 or 31.2 %

SHEFFIELD AND MUNDESELEY RESULTS.
(*Five Years' Work*).

Type of Case Treated.	Number.	Condition at Present Time After Periods Varying from 1½ to 5 Years After Discharge.		
		Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
Early Cases	9 or 37 %	7 or 77 %	2 or 22·2 %	—
Fairly Recent and Extensive Disease	11 or 46 %	2 or 18 %	2 or 18·4 %	7 or 63·6 %
Chronic Progressive Disease of Considerable Duration	4 or 17 %	1 or 25 %	—	3 or 75 %
Totals	24	10 or 41·7 %	4 or 16·6 %	10 or 41·7

The above three sets of figures give the following averages.

Number of Cases Treated.	Condition at Present Time After Periods Varying from 1 to 5½ Years After Discharge.		
	Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
465	46 %	19·6 %	34·4 %

KELLING SANATORIUM AT HOLT, NORFOLK.
(*Two Years' Work*).

Type of Case Treated.	Number.	Condition at Present Time After Periods Varying from 1 to 5½ Years After Discharge.		
		Normal Health and Full Working Capacity.	Fair or Poor Health, Little or no Working Capacity.	Dead.
Early Cases	84 or 44·92 %	63 or 75 %	19 or 22·62 %	—
Fairly Recent and Extensive Disease	77 or 41·17 %	14 or 12·99 %	48 or 62·33 %	11 or 14·29 %
Chronic Progressive Disease of Considerable Duration	26 or 13·90 %	—	10 or 38·46 %	16 or 61·53 %
Totals	187	77 or 41·17 %	77 or 41·17 %	27 or 14·44 %
				6 or 3·21 %

consumptive cases treated, one notes that the experiences of the Durham and Westmoreland sanatoria are again much the same as my own, *e.g.*, the proportion of early cases treated at Durham who have made permanent recoveries is 67·8 per cent., and the proportion of similar patients treated at Westmoreland who have done equally well is 83·7 per cent. This gives an average for the two sanatoria of 75·8 per cent. permanent recoveries out of 195 early cases treated; this result is almost exactly the same as that shown in my own figures, *viz.*, 77 per cent. The proportion of permanent recoveries that are found amongst the other types of consumption treated (*viz.*, those with fairly recent but somewhat extensive disease and those with chronic progressive disease of long standing) in the Durham statistics is 28·6 per cent., and in the Westmoreland results 31·4 per cent. This gives an average of 30 per cent. of recoveries out of 186 cases treated—in both sanatoria as compared with my own figure of 20 per cent. The proportion of all patients who have died in the course of from one to five years after discharge is 30·4 per cent. amongst the Durham cases and 31·2 per cent. amongst those treated at Westmoreland. This compares favourably with the death-rate in my cases of 41·7 per cent. The evidence, then, of the Durham and Westmoreland statistics distinctly confirms the conclusions which I drew from my twenty-five cases as to the value of the sanatorium treatment for the working classes at the present time.

The Proportions of the Various Types of Consumptive Patients which Constitute the Total Admission to Sanatoria for the Working Classes at the Present Time.

I have already noted that the degree of success obtained by any sanatorium as shown by the percentage of permanent recoveries obtained depends a great deal upon the proportion of the patients treated who had but early disease. It follows, then, that if the proportion of the various types of consumptive admitted to working-class sanatoria generally are

approximately the same as the proportion of these types which were treated in Durham, Westmoreland, Mundesley and Sheffield, the statistical summary of results which I have just given may be accepted as giving a fair view of the economic value of the work of similar institutions. In Table No. IX. are shown the admissions to ten sanatoria for the working classes, classified according to the type of disease to which they belonged. From this summary it is seen that the proportion of early cases among 1,915 patients admitted to these ten sanatoria was 32·5 per cent., the proportion of cases with fairly recent but somewhat advanced disease was 40 per cent., and the proportion of cases of chronic progressive disease of long standing was 18 per cent. The figures, then, representing the average proportion of these three types of consumptive patients who were treated at Sheffield, Mundesley, Durham and Westmoreland (*viz.*, early cases, 39·6 per cent.; cases with recent but somewhat extensive disease, 37 per cent.; and cases with chronic progressive disease, 24 per cent.) are a fair indication of the admissions to sanatoria for the working classes.

Economic Value of the Sanatorium Treatment for the Working Classes.

I think we may justly conclude, then, that the following figures approximately represent the economic value of the sanatorium treatment at the present time. Of all patients treated we may expect permanent restoration of health and working capacity in 46 per cent., death in from one to five years after discharge in 35 per cent., and lastly some degree of permanent restoration to a working capacity in 19 per cent.¹ This estimate of the value of the sanatorium treatment

¹This opinion is supported by the experience of the German sanatoria for the working classes, particulars as to which are given by Dr. Arthur Latham in a recent number of *The Lancet* ("The Economic Value of Sanatoriums," 6th Jan., 1906). Reviewing the German statistics, Dr. Latham writes: "We see then that viewed as a whole, every 100 cases treated in the German sanatoria for the working classes provide at least 31 persons who are

is distinctly encouraging. Every succeeding year moreover will, I feel sure, see an increasing improvement in these figures, indicating an added degree of success in sanatorium work owing to earlier recognition of the disease and increasing willingness on the part of the working classes to undergo treatment when the disease is in its earlier stages, and general health and capacity for work are not yet obviously impaired.

Judging from my own experience, the proportion of early cases amongst patients admitted to sanatoria for the leisured classes is nowadays much greater than it was five years ago, and the proportion of permanent recoveries is, in consequence, constantly tending to become greater. I am glad to note from the reports of several sanatoria for the working classes that a similar improvement in the admissions to these institutions is already to be observed ; there still remains very much to be desired in this respect. Another factor which in the future must also increase the proportion of permanent recoveries amongst consumptives, is the more general appreciation that a few months stay in a sanatorium, in the majority of cases, only results in arrest of the disease and not in its eradication, and that in consequence, it is essential that patients after discharge should live under healthy conditions, if their arrested lesions are eventually to become obsolete. A good deal of attention is now being paid to this very important subject, *viz.*, the after care of the consumptive ; this is bound to have a favourable influence. The sanatorium treatment as at present practised is not, I believe, likely to achieve greater successes in the way of curing tuberculosis than it is now doing, and until some specific cure is found, we must

capable of work at the end of five years (not from their first symptom, but after their discharge from the sanatorium) and that when the conditions are more favourable, as they are in the case of employees of the Prussian and Hessian State railways, out of each 100 cases treated, from 43 to 53 are capable of full work at the end of five years from the time they left the sanatorium. These results show that under present-day conditions treatment is more successful than it was before the advent of sanatorium treatment." The German statistics thus referred to by Dr. Latham will be found in the Appendix.

TABLE No. IX.—STATISTICS OF ADMISSIONS TO VARIOUS SANATORIA FOR THE WORKING CLASSES SHOWING THE PROPORTION OF EARLY AND ADVANCED CASES ADMITTED.

Sanatorium.	Total Admissions.	Type of Disease.				
		Early.	Per- centages.	Fairly Recent and Extensive.	Per- centages.	Chronic and Progressive Disease of Considerable Duration.
Nottingham Sanatorium, Sherwood Forest .	79	36	45.5	36	45.5	7
Western Hospital, Torquay	90	42	46.6	33	36.6	15
Kingwood Sanatorium, Peppard Common .	93	40	43	34	36.5	19
Devon and Cornwall Sanatorium, Didworthy .	61	15	24.6	32	52.4	14
National Sanatorium, Bournemouth . . .	300 ¹	118	39.3	—	—	—
Royal National Hospital, Ventnor	734	153	20.8	504	68.6	77
Westmoreland Sanatorium, Grange-over-Sands	224	55	24.5	62	27.6	107
Kelling Sanatorium, Holt	187	84	44.9	77	41.1	26
Worcester Sanatorium, Knightwick . . .	49	22	44.8	21	42.8	6
Durham Sanatorium, Stanhope	98 ²	59	60.2	—	—	—
Total	1915	624	32.5	799	49.4	271

SUMMARY OF THE ADMISSIONS AT WESTMORELAND, DURHAM, SHEFFIELD AND MUNDESLEY.

Total Admissions, 465	Early Cases, 39.6 %	Fairly Recent and Extensive Disease, 37 %	Chronic and Progressive Disease of Considerable Duration, 24 %

¹ The remaining 182 cases could not be classified above on account of the lack of information received in regard to them.² The remaining 39 cases could not be classified above on account of the lack of information received in regard to them.

look to earlier diagnosis and treatment and the work of after-care associations to increase the economic success of sanatoria. I have chiefly estimated the economic value of sanatoria for the working classes on the basis of the number of permanent recoveries we may expect from the general adoption of the sanatorium treatment for this class of consumptive; one is led to do so since there exists a tendency, especially on the part of the lay press and the public, to estimate the value of a new treatment for any disease by the number of complete cures it brings about, and not to take into consideration various degrees of improvement which are short of absolute cure. This is a fallacious method, and especially is it so when considering a disease like consumption, in which so much can be done to alleviate symptoms and prolong life even though cure is most improbable. The prolongation of a man's capacity for work, if only for a few years longer than it would otherwise have lasted, is in itself a material gain and economically sound. This degree of success is constantly achieved even when advanced cases of disease are given the benefit of sanatorium treatment.

Educational Value.

Another most important part of sanatorium work is that of teaching the consumptive how to live so as to give himself the best chance of recovering from his disease. Apart also from the inestimable value of this education to the individual consumptive treated, the force of his example after return home must have a wide influence, as he cannot fail to spread a knowledge of the principles of sanatorium life. Sanatoria, in short, must be looked upon as valuable centres for the dissemination of information as to the nature of consumption, and the means by which it must be combated and prevented. Such knowledge is of the highest moment to those sufferers from the disease who from stress of circumstances, social or financial, are unable to obtain admission to sanatoria, to the healthy also, an object lesson as to the value of fresh air and a temperate regular life must be an influence for good. The

principle of reserving a few beds in sanatoria for educational purposes, each patient occupying such a bed for a week, has much to commend it, especially in institutions where claims for admission are in excess of the accommodation. We adopted this plan at Sheffield with distinct advantage. If a week's stay in a sanatorium only suffices to teach a bad case of consumption how to treat himself and how to avoid being a source of infection to his family and neighbours, the time and money spent upon this patient have been profitably dispersed. Apropos of education, one has noticed how difficult it often is for the poorer classes to put into practice what they have learnt in sanatoria. Amongst the better classes, the consumptive at home usually has a retreat in which he can live his life of open windows, etc. He need not enforce his *régime* on his family, although little by little his relations are sure to assimilate some of its principles with profit to all concerned. The poor consumptive enjoys no such advantages. The home is too small for it. The patient discharged from a sanatorium must either return to the stuffy home to which he has always been used, or compel his wife and family to live the open-air life with him. In my experience the working classes nearly always make some attempt to carry on the sanatorium principles at home. An open bedroom window or an open front door is often a fresh feature in their home life, unless the tendency of a wife and a young baby to catch cold negatives it. Again, several of my old Sheffield patients used to spend their evenings in the public parks after the day's work, rather than sit in the window-closed parlour or kitchen. Many patients too learn to be more careful about their meals, and economise in various ways so as to have a larger sum to spend upon food. In several instances I know that the amount formerly spent upon alcohol, tobacco, etc., has been materially reduced and the food taken by the family appreciably improved in consequence. All this is to the good. "Gain is gain, however small".

Admissions to Working Class Sanatoria.

The question of provision of sanatorium accommodation for very advanced and hopeless cases is one of some difficulty. The chief essential is to reduce to a minimum the risk of the infective spreading infection. This can be done either by isolating such cases in buildings reserved for the purpose or by keeping them in their own homes under supervision of the local medical authorities. Apart from the obviously hopeless and the dying, we must consider the claims of patients with somewhat extensive and active disease. Whether or not the admission to working-class sanatoria of such advanced cases of consumption is advisable, is a point rather difficult to determine. I have heard men with considerable experience express an emphatic opinion that these cases should be excluded and that the admissions should be rigorously limited to early cases. The arguments in favour of this course are the greater degree of economic success that must follow its adoption, and so long as the beds available for the consumptive poor remain as inadequate for the demands as they are at present, the wish to make the best possible economic use of them is perhaps reasonable. Another argument against the admission of advanced cases is that they spoil statistics. That this is so is unquestionably true; but I do not consider it a sound reason for excluding them from the advantages of sanatoria. It is urged that the publishing of unsatisfactory statistics of sanatorium work resulting from the treatment of unselected cases shakes the confidence of the public in the value of this form of treatment, and thus directly damages a good cause, *viz.*, the provision of sanatoria for the poorer classes. There seems to be some truth in this assertion, for a speaker at the last annual meeting of the National Association for the Prevention of Consumption told me that to his knowledge the erection of three County sanatoria for the working classes previously decided on had just been postponed until further evidence was forthcoming to refute the adverse criticisms advanced of late

against such institutions. This is certainly much to be deplored. To my mind, however, the proving of the value of sanatoria by systematically admitting only those cases who are practically certain to furnish good statistics does not altogether commend itself. If public sanatoria are to give their supporters the best commercial return for their money, *viz.*, the highest possible proportion of good results, admissions must be limited to early cases. This is beyond question. If, on the other hand, sanatoria are to be centres for studying consumption and its treatment, and for the training of medical men who intend to devote themselves to this work, it is essential that advanced cases of the disease be admitted. It stands to reason, I think, that a sanatorium physician should be familiar with consumption in all its phases. Again, why refuse treatment to an advanced case simply because he is liable to relapse after his discharge? Cancer is infinitely more incurable, but who would hesitate to help any one suffering from this disease? The sooner it is generally appreciated that sanatoria, though offering the best chance to consumptives, cannot with certainty cure any individual case, and cannot possibly hope to cure many, the better it will be for all concerned. Opinion as to the possibilities of sanatoria will right itself. For the past few years, owing to the optimistic reports of the irresponsible and inexperienced, the curative value of the sanatorium treatment has been overrated. There are signs now that the inevitable swing of the pendulum of public opinion has taken place, and in some instances it has gone too far in its new direction. This is of no consequence, for opposition and criticism in the long run do no harm to a sound cause, but rather favour it by placing it on a secure basis. I have little doubt that ere long the three sanatoria at present "referred back to committee" will be in the hands of the builders, and that their promoters, having as a result of their inquiry a just appreciation of consumption and its curability, will not be disappointed with their results whatever types of case they may decide to admit. It must not be overlooked, too, that the prognosis in consumption is

notoriously uncertain. The most unlikely cases not infrequently do unexpectedly well and live useful lives for many years after their discharge; the records of some of my twenty-five patients demonstrate this point, notably case No. 3, second series. This was a patient admitted with extensive chronic disease, who is now at work and supporting his wife and child five years subsequently to his discharge. I have also heard it stated that the presence of advanced cases of disease has a depressing effect upon those around them who have but little the matter, and that it tends to destroy hope of cure. This is quite opposed to my experience; indeed, I think that a leaven of serious cases amongst a number of those who are but slightly affected is very desirable, for it makes the most indifferent alive to the possible evils that await him if he is careless as to his life after discharge. The first essential for a consumptive is to appreciate the gravity of the disease he has contracted. On several grounds, then, advanced cases of consumption have a claim on sanatoria.

Philanthropic Value.

There remains another aspect of the sanatorium work which I must refer to, since it is one which is apt to be overlooked, *viz.*, its philanthropic value. Of late it has not been infrequently urged that the treatment in sanatoria of consumptives who are not likely to make good or economic recoveries is a waste of time and not worth while. On purely economic grounds there is, of course, much truth in this, but one has to remember that charitable institutions in this country are not run on a purely economic or commercial basis. People suffering from consumption and dependent upon friends and relations for their support have a certain but indefinable value to the community. Sir Douglas Powell, at a recent meeting of the Royal Medical and Chirurgical Society, referred to this subject and I cannot do better than quote his words: "While the earlier cases of consumption are the most hopeful,

yet the severer cases, though unsuitable for admission to sanatoria, deserve sympathy and treatment, for they are of a certain value to civilisation, if of no economic value. As examples of such cases I might mention Robert Louis Stevenson and John Richard Green. Physicians should not be too economically minded in regard to advanced cases, and the economic output should not be the only outlook of hospital and sanatorium; we must remember that relief of symptomatic suffering is one of the highest functions of such institutions.”¹

I am sure that every one will endorse the sentiments thus sympathetically expressed by Sir Douglas Powell. It is true that it is at times disappointing to hear of the relapse or death of one's old patients, especially those who promised to do well, and these records of failure are not calculated to make statistics altogether encouraging. We must not forget that even with the failures, one has the satisfaction of knowing that by giving these patients treatment in a sanatorium, all that could be done for them under present circumstances had been done. Many a sanatorium failure, indeed, represents a considerable measure of philanthropic success. If the facts and the opinions I have ventured to express as to the value of sanatoria for the working classes are substantially correct, I think that one can unhesitatingly state that the sanatorium treatment for the working classes is well “worth while,” whether judged on economic, educational or philanthropic grounds. This is an opinion which is, I know, not shared by every one. From time to time one sees a crop of correspondence in the medical and lay press expressing doubts as to the usefulness of sanatoria for consumptives. It would appear from such correspondence that some would have it that the whole credit for the diminished and still diminishing death-rate for consumption and other tuberculous diseases

¹ Discussion on a paper read by Dr. Bardswell and Mr. Chapman upon the “Economic Value of the Sanatorium Treatment for the Working Classes, Based on After-histories”. *Trans. Royal Med. and Chir. Society*, vol. lxxxvii.

must be given to the sanitary authorities, public health acts and to the increasing attention paid to questions of drainage, housing, etc., measures in short calculated to prevent consumption rather than cure it. These writers would have us only attack tuberculosis from the point of view of prevention, and consider that the money now being spent upon sanatoria could be more profitably invested in sanitary improvements. The erection of sanatoria and the treatment of the individual consumptive would form no part of their programme. Obviously, the truth is that we need both these weapons to cope successfully with tuberculosis, *viz.*, sanitary science, mainly as a means of prevention, and sanatoria chiefly for the treatment of the individual consumptive, though these at the same time are no small aids in prevention. Sanitary legislation, sanatoria, public opinion and societies for the prevention and cure of tuberculosis all add their quota to the fight and all are needed; for in spite of the good work that is being done, consumption among curable diseases still remains one of the most difficult to cure. To this very fact, no doubt, the study of the subject owes no small part of its interest.

THE POSSIBILITIES AND LIMITATIONS OF THE SANATORIUM TREATMENT AS A CURE FOR CONSUMPTION.

For a proper appreciation of the curative possibilities of the sanatorium treatment of consumption, some knowledge of the pathology of the disease and of the manner in which it is arrested is essential. If the pathological conditions associated with various clinical manifestations of the disease were more generally known, I feel sure that we should hear less frequently of patients being discharged as cured, and fewer expressions of disappointment at patients relapsing after being seemingly restored to their normal health. In the first place we have to remember that the sanatorium treatment is not a specific cure for tuberculosis in the same way that salicylates are specific for acute rheumatism or antitoxin for diphtheria. We have in fact progressed no further than the

position summed up years ago by Laennec in the following sentence: "The cure of tubercular phthisis is possible to nature; it is certainly not yet so to medicine". The rationale of the sanatorium treatment consists in putting the consumptive in the position to allow of nature doing her best for him, a remedy which, simple as it sounds, has required a great deal of finding out. The sanatorium physician has to fight the disease indirectly. He helps the consumptive to cure himself, by improving his general health and increasing his power of resistance. The principles underlying the modern treatment of consumption have been not inaptly compared with those that govern the training of athletes. A well-known university oarsman, one of the best rowing coaches of the present day, was recently staying at a sanatorium and saw a good deal of the life of the patients there. His comment was that the treatment appeared to be much the same as training for the 'Varsity boat race. And so it is, the object aimed at in each case being the same, *viz.*, the highest possible degree of physiological efficiency. The question remains then, not so much how far can the sanatorium physician cure tuberculosis, but rather to what extent under favourable conditions is the disease curable by nature? Pathological research can teach us a good deal on this point. We know from the researches of Metchnikoff that when tubercle bacilli gain an entrance into the body they are attacked by the white corpuscles of the blood. If successful, these corpuscles destroy the bacilli by a process of intracellular digestion, termed by Metchnikoff phagocytic action. To increase this phagocytic action is one of the aims of the sanatorium treatment. When the bacilli in spite of the resistance offered by the white corpuscles have obtained a definite lodgement in the lung, and brought about changes characteristic of the disease, *viz.*, necrosis, etc., various results are possible in the way of arrest and cure of the morbid process. These are the conditions which the physician endeavours to bring about.

Methods of Repair.—The process by which nature brings about arrest and cure of the disease of the lung varies in

different cases, and as Fowler has remarked, the exact process by which the arrest of the disease is effected is a matter of much moment to the patient, for upon it may depend his prospects of future health.

“ Our knowledge as to the arrest and cure of tuberculous lesions in the lungs has been principally gained from the examination of old or obsolete foci of disease, found *post-mortem* in people who have died of some other disease. Three chief varieties of obsolete lesions may be recognised” (Fowler).

1. Pigmented tubercles which have undergone fibrosis may be seen upon the margins of areas of fibroid induration, around which there is much puckering and scarring, and within which small caseous or caseo-calcareous nodules are often present. (This is the most common form of arrested lesion found *post-mortem* in persons dying of other diseases.)

2. A caseous mass of considerable size, *viz.*, as large as an olive or a small walnut, may become surrounded by a fibroid capsule.

3. Arrest may take place after formation of a cavity.

(1) *Pigmented Scars*.—Dr. Sidney Martin has described two varieties of the first type of obsolete lesion which he terms (a) calcareo-caseous, and (b) fibroid and pigmented, retrograde tubercle. In the first case, the healed tuberculosis is in the form of calcareo-caseous nodules from an eighth to half an inch in diameter, and surrounded by dents and pigmented fibrous tissue. In the second case, there are no calcareo-caseous nodules, but the miliary granulations are completely transformed into dense and pigmented fibrous tissue. The great difference between these two varieties of healed tubercle is that “ whereas the fibroid and pigmented tubercle never contain any tubercle bacilli, the calcareo-caseous nodule almost constantly does. The bacilli are not commonly very numerous. They are of normal shape and occur singly, or in groups of five to twelve.” Dr. Martin in 445 consecutive *post-mortems* on persons who died of diseases other than tuberculosis found 31 cases of calcareo-caseous retrograde

tubercle, and 11 cases of fibroid and pigmented tubercle in the lungs. Of these 42 cases of cured consumption, how many can be considered to have been really cured in the sense of the disease being so thoroughly eradicated as to render re-infection from its original focus an impossibility? The 11 cases, in which no tubercle bacilli were found in the scars, may be considered absolute cures, but with regard to the commoner variety of this form of retrograde tubercle, viz., the calcareo-caseous type, in which tubercle bacilli are found in the scar tissue, there must, I think, be considerably more doubt. In Fowler's opinion "the tubercle bacilli are probably no longer active, since Martin was unable to produce the disease by the inoculation of animals with such material". This point is of such extreme interest from a clinical point of view that I have sought for a confirmation of Dr. Fowler's opinion. In answer to my query as to the evidence of the non-infectivity of the calcareo-caseous form of obsolete tubercle, Dr. Martin wrote to me as follows:—"I only injected retrograde tubercle containing tubercle bacilli into animals on two occasions. There was no result. This of course does not settle the point that it is not infective, as the tubercle bacilli may not have been numerous enough. Calcareo-caseous tubercle of from nine to twelve months old may be highly infective." Further work upon this subject would be of great practical value and interest. The length of time that the disease had been apparently cured in these cases of old tuberculosis is not known, but in many cases it had undoubtedly been many years. The proportion of people in this country who die of non-tuberculous disease, and in whom these signs of old consumption are found, is about 9 per cent. Fowler found them in 177 out of 1,943 cases or 9 per cent., Martin in 31 out of 445 cases or 9.4 per cent., and Heitler of Vienna found them in 789 of 16,562 cases or 4.8 per cent. (*Wiener Klinik*, 1879, p. 269).

We are unable to estimate how long it takes for a tuberculous focus in the lung to become completely healed and converted into a fibrous scar containing no tubercle bacilli,

neither do we know how long the calcareo-caseous type of scar may still contain tubercle bacilli. There are good grounds for thinking that it may be many years; *e.g.*, it is not uncommon to find typical retrograde lesions in persons, whose symptoms of consumption had long been forgotten. That these scars or retrograde tubercle found in the lung *post-mortem* may be the remains of consumption, recognised during life, which has undergone cure, is beyond doubt. One of the earliest recorded cases of cured consumption is probably that of Sir Astley Cooper. Shortly before his death he expressed a wish "that the appearances which should be presented on the inspection of his body" might be recorded in the *Guy's Hospital Gazette*. He particularly alluded to four points as being especially desirable of investigation, one of which was "suspected indications of consumption in early youth". It is said that he had suffered, when a young man, from an attack of hæmoptysis. The result of the *post-mortem* was that "at the superior and posterior part of the right lung there was a small depressed and somewhat contracted surface about the size of a sixpence, a section of which exposed a calcareous mass, very uneven, upon its surface, and about equal to the size of a small pea".¹ It would be of interest to know whether tubercle bacilli were present in the calcareous mass, but this of course can never be ascertained. The work of Sidney Martin would suggest that such a thing is quite possible. In any event, Sir Astley Cooper's life of strenuous work is an encouraging example of what a consumptive can live to achieve.

(2) *Arrest with Tuberculous Matter Encapsuled by Fibrous Tissue.*—The isolation of the results of tuberculous disease of the lung from the surrounding healthy tissue is another method by which it may become arrested. This isolation is affected by the growth of a fibrous envelope round the diseased area. This is the usual form of arrest when the disease has gone beyond its earlier stages. In this case there is a

¹ Ref. *Guy's Hospital Reports*, Series I, vol. vi.

mass of highly infectious material shut off from the possibility of spreading the disease by a fibrous envelope, and so long as this enclosed tuberculous matter contains tubercle bacilli, it remains a source of possible reinfection.

A patient with an arrested lesion of this type depends upon the integrity of this fibrous envelope for immunity from relapse; a condition which, as Fowler has remarked, is fraught with grave possibilities of danger. How long tuberculous matter thus enclosed may remain infective is difficult to determine: that it may be capable of reproducing the disease after a great many years is unfortunately beyond doubt. There have been a good many cases recorded in which a sudden outbreak of acute tuberculosis has developed in persons apparently in perfect health, the source of infection of which has been found *post-mortem* to have been tuberculous material, until recently encapsuled, the result of disease arrested many years previously. Fowler has recorded a case in which miliary tuberculosis of the lung was unquestionably due to the breaking down of a fibrous envelope surrounding a caseous mass.

This mass "was about the size of a large olive, the result of pulmonary tuberculosis which had been arrested forty years previously."¹ This patient had had no symptom of the disease during the forty years in which the disease had remained arrested, nor were there any physical signs to be found during life indicating the existence of tuberculosis.

Dr. Bristow has also recorded a case in which it seemed quite clear that an encapsuled cretaceous mass was a source of miliary infection, and another in which coexistent with a recent tuberculous mass in the brain there was an old encapsuled caseous mass concerning which there was no clinical history whatever.²

¹ Ref. "Arrested Pulmonary Tuberculosis," Fowler, *British Medical Journal*, 31st Oct., 1901. Fowler has further recorded nineteen *post-mortems* on patients dying from acute tuberculosis of the lung, in whom old tuberculous lesions were also present and had evidently been a source of the last infection.

² Ref. "Discussion on Arrest of Pulmonary Tuberculosis," *British Medical Journal*, 31st Oct., 1901.

Most physicians with any experience of consumption must have seen examples of acute relapses occurring in patients subsequent to their discharge from sanatoria with disease "apparently cured," and who had remained in this satisfactory condition for many months or even years. The recrudescence of the disease in these cases is almost invariably due to the breaking down of fibrous tissue surrounding old tuberculous material, and *post-mortem* examination in my experience nearly always reveals the source of reinfection.

(3) *Arrest of the Disease after Excavation has Taken Place.*—Permanent arrest of the disease after definite excavation has taken place is a good deal less probable than when no cavity exists. The morbid process may, indeed, remain quiescent for many years, and the patient eventually die of some other disease. Fowler, for instance, has recorded the case of a patient in whom good health and a cavity in one lung had coexisted for over forty-seven years.¹ Still the probabilities of its remaining quiescent for anything like so long a period are small. The mere fact that excavation has taken place means that the disease in the lung has been of a severe type, and that in addition to the cavity, there are almost certainly tuberculous masses embedded in fibrous tissue. The dangers associated with this condition I have already referred to.

A cavity is in itself a source of danger for a very long time, and it is very doubtful whether an excavation large enough to be recognised during life ever completely closes. The secretions from cavities contain tubercle bacilli for many months after symptoms of active disease have disappeared, and even when arrest is apparently complete, and the sputum has long been free from bacilli, *post-mortem*, tubercle bacilli are usually to be found embedded in the walls of the cavity. Another serious risk which must attend cases of arrested consumption, with the existence of a cavity, is that of hæmoptysis, due to rupture of blood-vessels, which remain after the surrounding lung has been destroyed. Hæmoptysis

¹ Ref. Fowler, "Arrested Pulmonary Tuberculosis," 1899.

in such cases is often very severe, and very frequently results in reactivity of the disease. This brief epitome of the ways in which nature attempts to fight consumption may help those not conversant with the pathology of the disease to understand why it is that it is so difficult to cure.

It is in the large majority of cases a fairly simple matter to arrest the morbid process, but to completely eradicate it is a matter of considerable difficulty. I think one may safely assume that any one who has had definite signs and symptoms of consumption, and who has recovered, has in his lung one of the various types of arrested lesions which I have described. It would seem that the most favourable cases of consumption, *viz.*, those with but early disease, who under the sanatorium treatment make the best recoveries, and lose all signs of their disease, must be regarded when discharged as with disease only arrested, however complete their cure may appear. For a long time after being apparently cured, the focus of arrested tuberculosis almost certainly contains tubercle bacilli, which may again become active. Clinical evidence, *viz.*, the after-histories of such patients, fortunately shows us that retrograde lesions resulting from arrest of early disease, even though they may contain tubercle bacilli, do not form a very grave source of danger. A large majority of these cases have no return of the disease, and even though a good many of them may still have tubercle bacilli in their scars, they enjoy perfect health, and are to all intents and purposes absolutely cured.

Patients whose arrested lesion is in the form of pigmented scars, in which no tubercle bacilli are found, are cured in the truest sense of the term. Unfortunately, however, it is impossible to determine during life what variety of obsolete lesion has resulted from a focus of early disease.

In cases in which the disease of the lung has gone beyond its early stages, arrest of the morbid process is nearly always associated with the encapsuling of tuberculous material within fibrous tissue. Physical examination of the chest may reveal nothing which is incompatible with a completely healed

lesion. There may be no moist sounds and nothing abnormal except some loss of resonance and movement; general health may be perfectly restored, and sputum if present may be free from tubercle bacilli. Such a patient is indeed apparently cured. It is presumption, however, to assume that he is indeed cured, and it is in many instances inadvisable to allow the patient himself to think so. With the knowledge that his future safety, at least for some years, depends upon the integrity of his fibrous envelopes, I would rather tell such a patient that his disease was merely arrested, and warn him particularly against fatigue, over-exertion, and any condition calculated to lower his powers of resistance. A patient whom one believes to have arrested disease of this type cannot afford to take the same risks as a patient who has had but early disease.

At the same time, it is a mistake to allow a consumptive to grow too diffident as to his capacity for work. This may end in the patient becoming selfish, introspective and absolutely lazy, a result particularly unfortunate in the case of the working classes. In my experience, the majority of consumptives are the better for some occupation; but this occupation must be suitable for their several conditions. There is much that the consumptive can do, indeed it has often surprised me how much work, even heavy work, he may undertake with immunity from disaster. He should work, however, with an intelligent appreciation of his physical limitations, and of the risks inseparable from it.

If the consumptive can maintain his general health in good condition his disease may remain quiescent almost indefinitely, but under conditions which lower general strength and vitality there is grave risk of the scars breaking down. Violent muscular exertion may in the same way bring about disaster. The longer the disease remains in a condition of apparent complete arrest, the firmer will be the scar tissues which are the patient's safeguard from relapse: it is for this reason that a prolonged course of sanatorium life—not necessarily all spent in a sanatorium—is so desirable. If arrest is

thus maintained for some years, there is a probability of the tuberculous foci encapsuled in the lung becoming obsolete and free from bacilli, but during life it is impossible to say when or whether this has taken place. Pathology, then, teaches us not to be too sanguine about the cure of consumption at the present day. Indeed, when one considers how difficult it is to completely eradicate tuberculosis from the lung, and how wide a gulf separates "arrest" of the disease from "cure," one is surprised how many consumptives remain permanently restored to health and a full capacity for work. Surprise and disappointment have been expressed in some quarters at the large proportion of consumptives, especially of the consumptive working classes, who relapse after having been apparently fully restored to health. These sentiments can only be shared by those who are ignorant of the nature of the disease.

At what period of his career may a consumptive consider himself absolutely safe from possibilities of relapse? this, I consider, is impossible to determine. If certain cure is so difficult to obtain, it may be asked what is the use of treating consumptives at all. Fortunately, complete arrest or apparent cure of consumption may be to all intents and purposes equivalent to an absolute cure, for so long as tubercle bacilli, even if still in the lung, remain encapsuled, they are innocuous. This condition of complete arrest may exist almost indefinitely—indeed for a long lifetime. In bringing about this "arrest" lies the value of the sanatorium treatment for the consumptive. But to keep his disease thus in abeyance, he must never relax his vigilance and always maintain his general health at its highest possible level; hence the continued necessity for open air, good and abundant food, freedom from wear and tear, etc. Under these conditions, even very advanced cases of disease may hold their own and lead long and useful lives. Under reverse conditions the earliest and most hopeful cases are apt to break down. The consumptive of the leisured classes must obviously have a much better outlook than his poorer neighbours, for he can afford to live under conditions which favour him. The poor man on the

other hand must of necessity take all sorts of risks: small wonder that he often relapses. I have not infrequently read the following query apropos of consumption. "If curable, why not cured?" I have not seen it answered, but this chapter in default of anything better may in some small measure serve the purpose.

References:—

- "Arrested Pulmonary Tuberculosis"; Kingston Fowler. *British Medical Journal*, 31st Oct., 1901.
- "Arrested Pulmonary Tuberculosis"; Kingston Fowler. A lecture delivered at Brompton Hospital for Consumption, 1899.
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- "Discussion on Arrest of Pulmonary Tuberculosis". *British Medical Journal*, 31st Oct., 1901.

APPENDIX I.

SOME DETAILS OF THE HADLEIGH COLONY.

Farm of 950 Acres.—Two hundred of this is arable land, remainder permanent pasture. Work done—mainly fattening cattle.

Dairy Work.—Forty-five cows kept. The milk is sold locally, and proves a profitable undertaking.

Poultry Farming.—Thirty acres, on which are kept 3,000 birds in 100 separate houses and sixty-four coops. This work consists almost entirely of breeding first-class birds. Their live birds and settings of eggs are in great demand for stock purposes, and a good deal of export trade is done in this line. No birds are reared for killing. This department is in charge of a particularly able man.

Market Gardening, 400 Acres.—Fruit growing (200 acres), *e.g.*, plums, apples, currants, gooseberries, etc., pays well, their market being South-end. Flower growing (two acres) pays its way, and the growing of rhubarb and strawberries is also profitable.

On the whole colony there are from fifty to sixty permanent workers who can overlook and direct the work of from 200 to 300 colonists.

Sample Diets supplied to the Men at the Hadleigh Colony at a cost of 8s. per Week per Head.

Monday :—

Breakfast—Tea, bread and butter, porridge.

Dinner—Roast meat and stew, potatoes and cabbage, bread, tart.

Tea.—Bread and butter and tinned salmon.

Tuesday :—

Breakfast—Tea, bread and butter, cold bacon.

Dinner—Roast meat and stew, potatoes and beans, bread, plum pudding and jam.

Tea—Bread and butter and German sausage.

Wednesday :—

Breakfast—Tea, bread and butter, porridge, and an egg.

Dinner—Roast meat and stew, potatoes and peas, bread and currant roll.

Tea—Bread and butter and corned beef.

EXTRACT FROM BALANCE-SHEET OF THE DARKEST ENGLAND FUND.

(THE SALVATION ARMY SOCIAL WORK).

Dr.	£	s.	d.	£	s.	d.	Cr.	£	s.	d.	£	s.	d.
<i>The Farm and Dairy Section—</i>							<i>The Farm and Dairy Section—</i>						
To Stock, 30th September, 1903	5,138	15	0				By Sales (including supplies to other sections)	4,907	12	4½			
" Purchases, Wages and Expenses.	5,343	0	6½			10,481 15 6½	" Stock as per Valuation, 30th September, 1904	4,951	17	8			9,859 10 0½
<i>The Market Garden and Nursery Section—</i>							<i>The Market Garden and Nursery Section—</i>						
To Stock, 30th September, 1903	4,042	12	3				By Sales (including supplies to other sections)	3,490	0	11			
" Purchases, Wages and Expenses.	4,753	2	6			8,795 14 9	" Stock as per Valuation, 30th September, 1904	4,288	16	0			7,778 16 11
<i>The Poultry Section—</i>							<i>The Poultry Section—</i>						
To Stock, 30th September, 1903	828	13	0				By Sales (including supplies to other sections)	956	7	1			
" Purchases, Wages and Expenses.	1,534	19	10			2,363 12 10	" Stock as per Valuation, 30th September, 1904	1,028	10	9			1,984 17 10

APPENDIX II.

NOTES UPON THE CONSTRUCTION OF CHEAP DIETARIES FOR THE WORKING CLASSES.¹

Extract from "A Study of the Diet of the Labouring Classes in Edinburgh". By D. Noel Paton, J. Craufurd Dunlop and Elsie Maud Inglis.

The ideal diet for family use to aim at is one where the energy amounts to at least 3,500 calories, where the proteid amounts to at least 118 grammes, and where the carbohydrate does not much exceed 500 grammes. Looking over the dietaries studied, the outstanding feature is the great use of bread combined with butter, tea and sugar. The poverty in proteid of such a combination is shown in the following table, where the composition of a typical tea, bread and butter meal is given. The cost of such a meal would be almost exactly 1½d.

	Proteid.	Fat.	Carbohydrate.
Tea	—	—	—
Sugar, ½ oz. . . .	—	—	14·2
Milk, 1½ oz. . . .	1·2	1·4	1·7
Bread, 10 oz. . . .	26·1	3·7	150·8
Butter, ½ oz. . . .	0·2	11·5	—
Total	27·5	16·6	166·7

Calories = 950·6.

Proteid Calories = 112 = 12 % of total.

A combination of food to partly replace or to supplement this faulty diet is what is wanted. The most obvious improvement would be the free

¹The construction of cheap dietaries suitable for the treatment of pulmonary tuberculosis is a subject to which Mr. Chapman and I have devoted considerable attention during the past few years. The results of our work on this branch of dietetics will shortly be published.

use of proteid, rich animal food, such as flesh, fish, eggs, cheese, etc., but such is impracticable for the labouring classes on account of the cost. All these animal foods are expensive. Failing this, resource must be had to proteid rich vegetable food, such as is to be found in oatmeal, the cereals with the largest proportion of proteid, and in the pulses (or legumes)—peas, beans, etc., which all have a large proteid value. A good substitute for the faulty tea and bread meal is to be found in our national dish of porridge and milk. The composition of a meal of porridge and milk, costing nearly the same as a bread, butter and tea meal is shown in the following table :—

	Proteid.	Fat.	Carbohydrate.
Oatmeal, 8 oz. . . .	36·6	16·4	153·4
Milk, 10 oz.	9·4	11·3	14·2
Total	46·0	27·7	167·6

Calories = 1133.

Proteid Calories = 188 = 16·5 % of total.

The advantage of the porridge meal over the tea, bread and butter meal is obvious. For the same money more energy and more proteid is got; in fact, a porridge and milk diet contains the food principles in perfectly correct proportion. The contrast between an entire day's diet composed of tea, bread and butter, and one of porridge and milk is shown in the following table :—

	Proteid.	Fat.	Carbohydrate.	Calories.	Cost.
Tea, Bread, Butter . .	106	51	579	3279	5·2d.
Porridge and Milk . .	128	83	506	3375	4·5d.
In Favour of Porridge	+ 22	+ 32	- 73	+ 100	- ·7d.

The advantage of the latter is obvious. For less money a diet of greater energy, containing more proteid, and without any excess of carbohydrate, is obtained.

It would be unreasonable to suggest that the labouring classes should live entirely on porridge and milk; such a diet would on account of its monotony be faulty, but a desirable change in the labourer's diet is the substitution of porridge and milk for some of the tea and bread meals. Were one meal of porridge and milk taken daily in place of one tea and bread meal, let it be a breakfast or let it be a supper, the labourer's diet

would be vastly improved and its outstanding faults cured ; its daily proteid value would be raised from 108 to 120 grammes, and its energy value from 3,227 calories to 3,447 calories.

The disuse into which porridge has fallen in the dietaries of the labouring classes is to be deplored, the inevitable substitute is tea and bread, and the inevitable result is a reduction of the nutritive value of the diet. The reason of the disuse of porridge is to be found in the lazy habits of the labouring classes. In old days, when the housewife had to make her bread as well as her porridge, there was not the same inducement to use bread constantly, but now when practically no bread is made by the housewife it comes to be a question of using the ready cooked bread or the uncooked oatmeal ; laziness decides which it is to be, and the family suffers.

One other food stuff, or rather class of food stuffs, to be advised for freer use in labourers' families is that of peas and allied foods, lentils and beans. These are cheap foods and contain a large amount of proteid. A meal of pea soup and bread, or one of beans, fat bacon and bread, instead of a tea, bread and butter meal, would, like the use of porridge, correct the principal fault of the present labourer's diet, *viz.*, too little proteid, and do so without extra cost. But such meals, even more than porridge meals, entail cooking, and consequently will not be readily adopted by the labourers' housewives.

To improve the dietary of the labouring classes the following principles should be instilled into them :—

1. That a diet of tea and bread or of tea, bread and butter (the lazy diet) is faulty.
2. That the faults of the tea and bread diet can be corrected by the free use of meat, eggs, or other animal food, but that this mode of correction is expensive.
3. That the faults can also be corrected by the free use of oatmeal with milk, or of peas or beans, without extra cost.
4. That to correct the faults of a tea and bread diet, either money spent on animal food or labour spent on the cooking of vegetable food is necessary ; if they have not the former, the money, they must use the latter, the labour of properly cooking more nutritive foods.

Extract from a Lecture upon " Food and Drink in connection with Disease," by James Niven, M.A., M.B., M.O.H., Manchester.

Diet from the Economical Point of View.—I propose now to discuss the subject briefly from the point of view of economy. Proteid being the most essential article of diet, and also the most expensive, it is desirable to know how it may be most cheaply obtained. This is shown in the following table, modified from Hutchinson's figures :—

TABLE

(Modified from *Hutchinson on Dietetics*.)

Taking the analyses and prices given in Table V., we find that a pound of proteid costs :—

	s.	d.
Beef	2	6
Frozen Mutton	2	3 $\frac{4}{5}$
Liver, Ox	1	7 $\frac{3}{10}$
Heart, Ox	1	9 $\frac{9}{10}$
Herring	0	8 $\frac{4}{10}$ to 5d.
American Cheese	1	6 $\frac{1}{10}$
Cheshire	1	8 $\frac{1}{10}$
1d. Wholemeal	0	8 $\frac{1}{5}$ allowing for 20% loss 10 $\frac{1}{4}$ d.
Fine Flour	1	0 $\frac{3}{10}$ allowing for 10% loss 1s. 1 $\frac{9}{10}$ d.
2d. Oatmeal	1	2 $\frac{1}{10}$
White Bread	1	3 $\frac{4}{10}$
Hovis		About same.
	s.	d.
Dried peas, split	0	7 $\frac{1}{10}$ —20%, 8 $\frac{9}{10}$ d.
„ marrowfat	0	9 $\frac{1}{2}$ —20%, 11 $\frac{9}{10}$ d.
Lentils	0	8 $\frac{6}{10}$ —10%, 9 $\frac{6}{10}$ d.
Haricot Beans	0	8 $\frac{7}{10}$ —30%, 1s. 4d.
Milk	3	4
Eggs	5	1

As regards the total calories derivable from the amount of different foods which can be bought for the same sum, these are as follows :—

TABLE VIII.

(Modified from *Hutchinson on Dietetics*.)

The number of calories obtainable for a shilling without deductions :—

Refined Cotton Seed Oil	16,740
Fine Flour at 1s. 2d. the dozen lbs.	15,636
Hutchinson Bread at 1 $\frac{1}{2}$ d. per lb.	10,764
Oatmeal	10,894
Beet Sugar	10,186
Peas	8,921
Lard, Dripping, Margarine at 4d. per lb.	8,652
Herrings, 2 for a 1d.	4,811
Potatoes	3,796
Milk	3,000
Butter	2,884
Cheese	2,638
Apples	1,529

We thus see that flour is the cheapest source of energy in general use, and that bread, oatmeal and sugar occupy the same rank, while the cheaper fats and oils are not much behind, ranking with the pulses.

Having thus obtained a clear idea of the foods which may be selected to give the cheapest foods, we note that the following simple combinations are useful :—

Bread and Milk.
 Bread and Cheese.
 Bread and Herrings.
 Bread and Margarine or Oil.
 Oatcake and Margarine.
 Oatcake and Cheese.
 Oatmeal as porridge and Sugar.
 Peas and Margarine or Oil.

From the table showing the analysis of foods into water, proteids, fats, carbohydrates and salts we can construct dietaries, and I show diets, for a man of average weight (11 stones) doing moderate work, for every day in the week, giving a fair amount of variety. They are arranged to contain a quart of milk so as to allow each of the children to get a share. The result of this is to raise the price of the dietary from 8d. to 10d. as may be seen on substituting for a quart of milk at 3½d., giving P 34·5 grm., F 35·4 grm., C 50·25 grm., the following :—

	Proteid.	Fat.	Carbohydrate.
	Grm.	Grm.	Grm.
Cheese 20 5 for ¾d.	18·51	17·44	—
Beans 20 5 for ¾d.	14·85	1·3	32·96
Sugar 10 5 for ½d.	—	—	25
Dripping . . . 10 5 for ¾d.	—	24	—
Price 1½d.	33·36	42·74	61·08
In this way we save 2½d.			

As these diets with milk do not depart much in price from 10d., in applying them to families we shall treat them as 8d. diets, the above substitution being supposed assuming that Atwater in his dietary scale has made allowance for the necessity of giving milk to very young children.

I have then endeavoured to reduce the price of the diets as much as possible by varying the combination of cheaper foods, and seven such

dietaries are shown with their prices, the utmost reduction being to 4½d., as shown on cheap diet 6. A fair diet may, however, be given for 3½d., as shown in No. 7.

It is conceivable that this might be depressed a little further by using flour instead of bread, and refined cotton seed oil as a fat. Such vegetable oil is the cheapest of all sources of energy. It is of the greatest importance to depress the price of the dietary as far as possible, since every fraction of a penny that we can save can be expended on vegetables, such as cabbage, turnips, carrots, or on some cheap fruit, such as apples, oranges or bananas. Cabbage may be obtained at 1d. each, turnips at 2d. for 5 lbs., oranges at four for 1d., and bananas, I am told, at four for 1d. A small portion of these make a valuable addition to the dietary.

The following are the dietaries constructed to yield, most of them, P 125, F 125, C 450.

TABLE IX.

Monday's Diet.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Bread, 1 lb.	1d.	29·75	4	232·25
Potatoes, 1 lb.	¾d.	5·4	—	85·95
Milk, 1 qt.	3½d.	35·4	35·4	50·25
Rice, 25 grm. at 3d. per lb.	¼d.	1·8	0·25	19·2
Two Herrings = ½ lb. cooked	1d.	50·12	19·6	—
Bacon, 2 oz.	¾d.	4·56	36·68	—
Margarine, 1½ oz.	7⁄16d.	—	36	—
Sugar, 2 oz.	¼d.	—	—	56·25
Tea, ¼ oz.	¼d.	—	—	—
Price	8½⁄8d.	127·03	131·93	443·9

Breakfast: Milk, 1 pint; 1 herring; bread, ¼ lb.; margarine, ½ oz.

Dinner: Bacon, 2 oz. fried; potatoes, ½ lb.; rice pudding (1⁄8 lb.); milk, 1 pint.

Tea: Tea, ½ oz.; sugar, 1 oz.; margarine, ½ oz.; bread, ½ lb.; 1 herring.

Supper: Potatoes fried in bacon fat, ½ lb.; margarine, ½ oz.; bread, ¼ lb.

Tuesday's Diet (for an Adult Man).

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Bread, 1 lb.	1d.	29·75	4·0	232·25
Milk, 1 qt.	3½d.	35·4	35·4	50·25
Lean Mutton at 6d., $\frac{3}{8}$ lb.	2½d.	30·375	9·42	—
Peas at 2d., $\frac{1}{16}$ lb.	½d.	29·5	2·5	77·9
Margarine, 3½ oz.	¾d. + ½d.	—	84·0	—
Vegetables	¼d.	—	—	—
Sugar, 2·6 oz.	2¾d.	—	—	—
Tea, ¼d.	¼d.	—	—	—
Price	9½d.	125·025	135·3	440·4

Breakfast: Bread, $\frac{1}{4}$ lb.; milk, $1\frac{1}{2}$ pints; tea, $\frac{1}{8}$ oz.

Dinner: Lean mutton, $\frac{3}{8}$ lb. fried and then stewed, with the peas previously cooked, cabbage separate and margarine, $1\frac{1}{2}$ oz.; bread, $\frac{1}{4}$ lb.

Tea: Tea, $\frac{1}{8}$ oz.; bread, $\frac{1}{2}$ lb.; margarine, 1 oz.; sugar, 2·6 oz.

Supper: Bread, $\frac{1}{4}$ lb.; margarine, 1 oz.; milk, $\frac{1}{2}$ pint.

Wednesday.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Pork, $\frac{1}{4}$ lb.	2d.	13·84	29·48	—
Milk, 1 qt.	3½d.	35·4	35·4	50·25
Cheese, 2 oz.	¾d.	18·51	17·44	—
Windsor Beans, $\frac{1}{8}$ lb.	¼d.	14·85	1·3	32·96
Bread, 1 lb.	1d.	29·75	4·0	232·25
Margarine, $1\frac{1}{2}$ oz.	¾d.	—	36·0	—
Cabbage	¼d.	—	—	—
Potatoes, 1 lb.	¾d.	5·4	—	85·95
Sugar, 2 oz.	¼d.	—	—	56·25
Tea, ¼ oz.	¼d.	—	—	—
Price	9½d.	117·75	123·62	457·66

Breakfast: Bread, $\frac{1}{4}$ lb.; milk, 1 pint; margarine, $\frac{1}{2}$ oz.; tea, $\frac{1}{8}$ oz.

Dinner: Pork, $\frac{1}{4}$ lb.; beans, $\frac{1}{8}$ lb.; bread, $\frac{1}{4}$ lb.; cabbage and margarine.

Tea: Tea, $\frac{1}{8}$ oz.; bread, $\frac{1}{4}$ lb.; margarine, $\frac{1}{2}$ oz.; sugar, 2 oz.

Supper: Fried potatoes, 1 lb.; milk, 1 pint.

Thursday.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Mutton, $\frac{1}{2}$ lb.	3d.	32.63	43.87	—
Milk, 1 qt.	3 $\frac{1}{2}$ d.	35.4	35.4	50.25
Suet Pudding, 2 oz. ($\frac{1}{4}$ oz. Suet, 1 lb. Flour)	0.35d.	5.80	10.98	—
Porridge (2 oz. Oatmeal)	0.3d.	7.99	4.11	37.07
Rice, 2 oz., husk removed	$\frac{3}{8}$ d.	4.05	1.13	43.2
Bread, 1 lb.	1d.	29.75	4.0	236.25
Sugar, 2 oz.	$\frac{1}{4}$ d.	—	—	56.25
Tea, $\frac{1}{4}$ oz.	$\frac{1}{4}$ d.	—	—	—
Cheese, 1 $\frac{1}{2}$ oz.	$\frac{9}{16}$ d.	13.424	12.55	—
Turnip, $\frac{1}{4}$ lb.	$\frac{1}{4}$ d.	1.01	—	5.62
Margarine, 1 $\frac{1}{2}$ oz.	$\frac{3}{8}$ d.	—	36.0	—
Cost of Diet	10.6d	130.05	148.04	428.64

Breakfast: Porridge (2 oz. oatmeal); milk, 1 pint; bread, $\frac{1}{4}$ lb.; margarine, $\frac{1}{2}$ oz.

Dinner: Mutton, $\frac{1}{2}$ lb.; turnip, $\frac{1}{4}$ lb.; suet pudding, 2 oz.; sugar, 1 oz.

Tea: Tea, $\frac{1}{4}$ oz.; bread, $\frac{1}{4}$ lb.; margarine, $\frac{1}{2}$ oz.; sugar, 1 oz.

Supper: Bread, $\frac{1}{4}$ lb.; cheese, 1 $\frac{1}{2}$ ozs.: margarine, $\frac{1}{2}$ oz.; rice pudding, (2 oz. rice); milk, 1 pint.

Friday.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Beef, $\frac{1}{2}$ lb.	3d.	45.0	3.37	—
Macaroni, 1 oz.	$\frac{1}{4}$ d.	3.06	—	21.29
Milk, 1 qt.	3 $\frac{1}{2}$ d.	35.4	35.4	50.25
Cheese, 1 oz.	$\frac{3}{8}$ d.	9.25	8.72	—
Bread, 1 lb.	1d.	29.75	4.0	232.25
Sugar, 2 oz.	$\frac{1}{4}$ d.	—	—	56.25
Potatoes, 1 lb.	$\frac{3}{8}$ d.	5.4	—	85.95
Margarine, 3 oz.	$\frac{3}{8}$ d.	—	72.0	—
Orange	$\frac{1}{2}$ d.	—	—	—
Tea, $\frac{1}{4}$ oz.	$\frac{1}{4}$ d.	—	—	—
Price	10 $\frac{5}{8}$ d.	127.86	123.5	445.99

Breakfast: Milk, 1 pint; bread, $\frac{1}{4}$ lb.; margarine, 1 oz.

Dinner: Beef, $\frac{1}{2}$ lb.; potatoes, 1 lb.; macaroni, 1 oz.; milk, $\frac{1}{4}$ pint with sugar, orange.

Tea: Tea, $\frac{1}{4}$ oz.; sugar, 1 oz.; bread, $\frac{1}{4}$ lb.; margarine, 1 oz.

Supper: Bread, $\frac{1}{4}$ lb.; cheese, 1 oz.; margarine, 1 oz.

Saturday.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
Bread, 1 lb.	1d.	29·75	4·0	232·25
Milk, 1 qt.	3½d.	35·4	35·4	50·25
Bacon, 2½ oz.	1d.	4·30	36·67	—
Liver, ½ lb.	1d.	25·98	10·12	5·62
Potatoes, 1 lb.	¾d.	5·4	—	85·95
Cabbage	¼d.	—	—	—
Cheese, 3 oz.	1½d.	26·84	25·1	—
Sugar, 2·6 oz.	⅞d.	—	—	80·0
Margarine, ½ oz.	¼d.	12·0	—	—
Tea, ¼ oz.	¼d.	—	—	—
Price	9¾d.	139·67	111·29	454·07

Breakfast: Bread, ½ lb.; milk, 1 pint.

Dinner: Liver and bacon (2½ oz. and ½ lb.); potatoes, 1 lb.; cabbage.

Tea: Tea, ¼ oz.; bread, ½ lb.; margarine, ½ oz.; sugar, 2 oz.

Supper: Bread, ½ lb.; cheese, 3 oz.; milk, 1 pint.

Sunday.

Materials.	Price.	Proteid.	Fat.	Carbohydrate.
One Herring	½d.	25·06	9·8	—
Bread, 1 lb.	1d.	29·75	4·0	232·25
Milk, 1 qt.	3½d.	35·4	35·4	50·25
Pastry: Dripping, 1 oz., Flour				
2 oz., Mutton, ½ lb.	2½d.	23·56	48·31	32·94
Margarine, 1 oz.	¼d.	—	24·0	—
Egg, 1	1d.	—	—	—
Potatoes, ½ lb.	¾d.	2·7	—	42·97
Sugar, 2·6 oz.	⅞d.	—	—	80·0
Orange	¾d.	—	—	—
Cheese, 1 oz.	¾d.	9·25	8·72	—
Tea, ¼ oz.	¼d.	—	—	—
Price	10¼d.	125·72	130·23	445·01

Breakfast: Herring, 1; bread, ½ lb.; milk, 1 pint.

Dinner: Pastry, potatoes, ½ lb.; orange.

Tea: Tea, ¼ oz.; egg, 1; bread, ½ lb.; margarine, 1 oz.

Supper: Bread, ½ lb.; cheese, 1 oz.

To these I have added the minimum expenditure on which an adult can subsist, which can be extended to children over three.

Cheap Diet No. I.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Bread, 1 lb.	1d.	29·75	—	232·25
Peas, $\frac{1}{4}$ lb.	$\frac{3}{8}$ d.	23·6	—	69·2
Turnip, $\frac{1}{2}$ lb.	$\frac{1}{4}$ d.	2·02	—	4·02
Margarine, 4 oz.	1d.	—	101·0	—
Potatoes, 1 lb.	$\frac{3}{4}$ d.	5·4	—	85·9
Cheese, 2 oz.	$\frac{3}{4}$ d.	18·51	17·44	—
Herrings, 2	1d.	50·12	19·6	—
Tea	$\frac{1}{2}$ d.	—	—	—
Sugar, 2 oz.	$\frac{1}{4}$ d.	—	—	56·25
.		129·40	138·04	447·62

The peas in the above are split peas at $1\frac{1}{2}$ d. per lb., and are to be made into soup with the turnip.

The cost of the above is $5\frac{9}{10}$ d. If we add $\frac{1}{2}$ d. for share of bone we may call it 6d. But in that case the diet will be increased in point of fat.

Cheap Diet No. II.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Herrings, 4	2d.	104·26	39·24	—
Bread, 1 lb.	1d.	29·75	—	232·25
Margarine, 4 oz.	1d.	—	101·0	—
Sugar, 4 oz.	$\frac{1}{2}$ d.	—	—	96·0
Potatoes, 1 lb.	$\frac{3}{4}$ d.	5·4	—	85·9
Tea	$\frac{1}{8}$ d.	—	—	—
Flour, 3 oz.	$1\frac{3}{8}$ d.	8·4	—	59·31
Price	$5\frac{9}{10}$ d.	147·81	140·24	473·46

Two of the herrings are here to be made into pasties. It is not a diet which could be often repeated, though an abundant one.

In the above diet it is important to retain all the salts. Hence there should be a steamer for the potatoes.

Cheap Diet No. III.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Haricot Beans, $\frac{1}{2}$ lb.	1d.	51.75	5.175	316.35
Bacon, $\frac{1}{4}$ lb.	1 $\frac{1}{2}$ d.	8.11	73.35	—
Bread, 1 lb.	1d.	29.75	4.0	232.25
Herring, 1	$\frac{1}{2}$ d.	25.06	9.8	—
Margarine, 1 oz.	$\frac{1}{2}$ d.	—	24.0	—
American Cheese, 6d., 1 oz.	$\frac{1}{2}$ d.	9.25	8.72	—
Tea	$\frac{1}{2}$ d.	—	—	—
Sugar, 4 oz.	$\frac{1}{2}$ d.	—	—	112.5
Price	5 $\frac{1}{2}$ d.	123.92	125.045	470.28

Breakfast: Tea, $\frac{1}{8}$ d.; herring, 1d.; bread, 6 oz.

Dinner: Bacon and beans as above; bread, 2 oz.

Tea: Tea, $\frac{1}{8}$ d.; bread, 4 oz.; margarine, $\frac{1}{2}$ oz.

Supper: Bread, 4 oz.; cheese, 1 oz.; margarine, $\frac{1}{2}$ oz.

Still cheaper dietaries could be constructed.

Cheap Diet No. IV.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Flour, 1 lb., Baked into Cakes = 20 % Proteid	1 $\frac{1}{2}$ d.	46.44	8.55	316.53
Beans Boiled, 1 lb. = 20 % Proteid	2d.	82.8	10.35	251.1
Margarine, 2 oz.	$\frac{1}{2}$ d.	—	48.0	—
Dripping, 2 oz.	$\frac{1}{2}$ d.	—	48.0	—
Sugar, 1 oz.	$\frac{1}{2}$ d.	—	—	28.12
Tea, $\frac{1}{4}$ oz.	$\frac{1}{2}$ d.	—	—	—
Price	4 $\frac{1}{2}$ d.	129.24	114.90	595.57

Cheap Diet No. V.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Herrings, 2	1d.	50.12	19.6	—
Beans, $\frac{1}{4}$ lb.	1d.	40.0	5.175	125.0
Bread, 1 lb.	1d.	29.7	4.0	232.5
Sugar, 2 oz.	$\frac{1}{2}$ d.	—	—	56.25
Tea, $\frac{1}{4}$ oz.	$\frac{1}{2}$ d.	—	—	—
Dripping, 1 oz.	$\frac{1}{2}$ d.	—	24.0	—
Margarine, 2 oz.	$\frac{1}{2}$ d.	—	48.0	—
Treacle, 2 oz.	$\frac{1}{2}$ d.	—	—	39.275
Price	4 $\frac{1}{2}$ d.	119.82	100.78	453.2

Cheap Diet No. VI.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Peas, 1 lb.	1½d.	94·5	8·1	249·3
Bread, ½ lb.	½d.	14·875	2·0	116·125
Herrings, 1	½d.	25·06	9·8	—
Fat, 2½ oz.	½d. + ⅛d.	—	60·0	—
Bone	¼d. say	5·0	10·0	—
Turnip	½d.	—	—	—
Sugar, 2 oz., Treacle, 2 oz.	½d.	—	—	95·0
Tea, ¼ oz.	¼d.	—	—	—
Price	4½d.	139·44	89·9	460·4

Calories = 3385·4.

Cheap Diet No. VII.

Articles.	Price.	Proteid.	Fat.	Carbohydrate.
Bread, 1½ lb.	1½d.	45·0	6·0	348·0
Sugar, 4 oz.	½d.	—	—	103·0
Herrings, 2	1d.	50·12	19·6	—
Margarine, 1 oz.	½d.	—	24·0	—
Oatmeal, 2 oz.	½d.	7·99	4·11	37·07
Peas, 2 oz.	½d.	11·2	5·0	31·18
Tea, ¼ oz.	¼d.	—	—	—
Price	3¾d.	114·3	58·7	519·2

Calories = 3141·0.

Breakfast: Porridge and sugar, 3 oz.; bread, 6 ozs. and 1 oz. margarine; tea, ⅓ oz.

Dinner: Herrings and bread, 6 oz.; peas and ¼ oz. margarine.

Supper: Bread, 6 oz, and margarine, ½ oz.; tea, ⅓ oz.; sugar, 1 oz.

APPENDIX III.

Statistics of German Sanatoria for the Working Classes from "The Economic value of Sanatoriums". By Arthur Latham, M.D. (Lancet, 6th Jan., 1906).

The number of cases of pulmonary tuberculosis treated between 1897 and 1905 in the German sanatoriums for the working classes amounts to over 100,000, as may be seen in the following table :—

Number of Cases treated in German Sanatoriums for the Working Classes.

	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.
Men .	16,957	14,937	12,187	10,812	8,442	6,032	3,806	2,598
Women .	6,520	5,211	4,302	3,844	2,652	1,666	1,104	736

The results of the sanatorium treatment of these individuals to date may be tabulated thus :—

Results of each 100 Cases treated in the Sanatoriums.

Discharged fit to work in 1900.	Remained capable of full work at end of—				
	1900.	1901.	1902.	1903.	1904.
Men, 72	66	48	40	35	30
Women, 72	67	52	46	40	35

Discharged fit to work in 1901.	Remained capable of full work at end of—			
	1901.	1902.	1903.	1904
Men, 77	70	53	45	38
Women, 77	72	60	51	45

Discharged fit to work in 1902.	Remained capable of full work at end of—		
	1902	1903.	1904
Men, 77	72	57	48
Women, 80	76	62	54

The average duration of stay in the sanatoriums was 75 days and the average cost per patient was from £17 to £18.

Better results still have been obtained by the Prussian and Hessian State railway companies which have sent their employees to the German sanatoriums for the working classes.

Results obtained in Employees of Prussian and Hessian State Railways.

Year of treatment. Number of cases } treated }	1898.	1899.	1900.	1901.
	217.	354.	429.	532.
Percentage of patients capable of full work in subsequent years {	79% in 1899 63% in 1900 54% in 1901 45% in 1902 43% in 1903	83% in 1900 72% in 1901 61% in 1902 54% in 1903 49% in 1904	84% in 1901 72% in 1902 63% in 1903 57% in 1904 53% in 1905	84% in 1902 72% in 1903 63% in 1904 58% in 1905

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